

Project Manual For:

# Hendersonville City Hall First Floor Alterations

and

# Alterations to City Operations Center

**Hendersonville, NC**

November 21, 2022

Project Number **22029**

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**Hendersonville, NC**  
**ADW Project Number: 22029**

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**DIVISION 24 – 25**

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**DIVISION 26**

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**DIVISION 27**

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**DIVISION 28**

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END OF SECTION 00 01 10





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**First Floor Alterations to Hendersonville City Hall**

and

**Alterations to City Operations Center**

Hendersonville, NC

ADW Project Number: 22029

**FIRST FLOOR ALTERATIONS TO HENDERSONVILLE CITY HALL**

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**MECHANICAL**

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## **00 11 13 – ADVERTISEMENT FOR BIDS**

**PROJECT:** First Floor Alterations to Hendersonville City Hall  
and  
Alternations to City Operations Center  
Hendersonville, NC

**ARCHITECT:** ADW ARCHITECTS, P.A.  
2815 Coliseum Centre Drive, Suite 500  
Charlotte, North Carolina 28217  
Phone (704) 379-1919 Fax (704) 379-1920

**PROJECT LOCATION:** The Hendersonville City Hall is located at 160 Sixth Avenue East, Hendersonville, NC 28792. The City Operations Center is located at 305 Williams Street, Hendersonville, NC 28792.

### **GENERAL DESCRIPTION OF WORK:**

The work includes General, Plumbing, Mechanical, and Electrical work to be constructed under one Single Prime Contract. The extent of work is shown on the drawings and specified in the project manual.

**BIDS DUE:** Sealed Bids will be received until 2:00 pm, Wednesday, March 15, 2023 in the Multipurpose Room of the City Operations Building, 305 Williams Street, Hendersonville, NC 28792.

**PRE-BID CONFERENCE:** There will be a pre-bid conference held at 11:00 am, Tuesday, February 14, in the Multipurpose Room of the City Operations Building, 305 Williams Street, Hendersonville, NC 28792. All General Contractors are encouraged to be represented at the conference.

### **BID DOCUMENTS:**

Prospective bidders may order a complete hardcopy and/or digital set of plans and specifications online beginning Thursday, February 2, 2023 for a non-refundable charge at the following:

Duncan-Parnell, Inc.  
[www.dpibidroom.com](http://www.dpibidroom.com)  
Contact: Michaela Bruinius  
Email: [michaela.bruinius@duncan-parnell.com](mailto:michaela.bruinius@duncan-parnell.com)

A hardcopy set will be available for \$333.00 plus tax.

A hardcopy set and digital copy set will be available for \$358.00 plus tax.

A digital copy set will be available for \$250.00 plus tax.

Plans and specifications may be viewed at no cost using the Duncan-Parnell bidroom link listed above.

Plans and specifications may also be viewed in the following plans rooms: BidClerk, Dodge, and iSqFt.

### **BID BOND:**

Each bid must be accompanied by a cashier's check or a certified check drawn on a bank of trust company insured by the Federal Deposit Insurance Corporation made payable to The City of Hendersonville in an amount of five percent (5%) of the gross amount of the base bid or by a bond in the above amount executed in accordance with and conditioned as prescribed by G.S. 143-129, State of North Carolina. If the successful bidder fails to give satisfactory surety as required by law, the above deposit will be retained

ADVERTISEMENT FOR BIDS

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by the Owner. All contractors are hereby notified that they shall be properly licensed under the state laws governing their trades.

PERFORMANCE & PAYMENT BOND:

The successful General Contractor will be asked to provide a Performance Bond and Payment Bond for 100% of Contract Amount after selection.

If awarded, the bid will be awarded to the lowest responsive, responsible bidder, taking into account quality, performance and time, and demonstrated compliance with the formal HUB solicitation requirements as specified in the Instructions to Bidders.

The City reserves the right to waive any informality and to reject any and all proposals for any reason determined to be in the best interest of the City, except for the purpose of evading the bid laws. Nonresponsive bids will be rejected.

SECTION 00 21 13 - INSTRUCTIONS TO BIDDERS

AIA DOCUMENT A701



# AIA® Document A701® – 2018

## **Instructions to Bidders**

for the following Project:

*(Name, location, and detailed description)*

**First Floor Alterations to Hendersonville City Hall  
160 Sixth Avenue East  
Hendersonville, NC 28792**

and

**Alterations to City Operations Center  
305 Williams Street  
Hendersonville, NC 28792**

### **THE OWNER:**

*(Name, legal status, address, and other information)*

**The City of Hendersonville  
160 Sixth Avenue East  
Hendersonville, NC 28792**

### **THE ARCHITECT:**

*(Name, legal status, address, and other information)*

**ADW Architects, P.A.  
Six Coliseum Centre  
2815 Coliseum Centre Drive  
Charlotte, NC 28217**

### **ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

**FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.**

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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- 1      **DEFINITIONS**
- 2      **BIDDER'S REPRESENTATIONS**
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- 4      **BIDDING PROCEDURES**
- 5      **CONSIDERATION OF BIDS**
- 6      **POST-BID INFORMATION**
- 7      **PERFORMANCE BOND AND PAYMENT BOND**
- 8      **ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**
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## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

§ 3.1.2 [Deleted]

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

### § 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids.

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

### § 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

#### § 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

Complete bidding documents are available from Duncan-Parnell, Inc., (issuing office) at the following:  
www.dpibidroom.com.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

#### ARTICLE 4 BIDDING PROCEDURES

##### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

##### § 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

*(Insert the form and amount of bid security.)*

Each bid must be accompanied by a cashier's check or a certified check drawn on a bank of trust company insured by the Federal Deposit Insurance Corporation made payable to The City of Hendersonville in an amount of five percent (5%) of the gross amount of the base bid or by a bond in the above amount executed in accordance with and conditioned as prescribed by G.S. 143-129, State of North Carolina. If the successful bidder fails to give satisfactory surety as required by law, the above deposit will be retained by the Owner.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract within ten (10) calendar days of receipt of the Notice of Award or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner. In submitting the bid security, if not submitting cash or a certified check, Bidders are required to use the form provided in the bidding documents.

§ 4.2.3 The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected.

#### § 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated in the Information for Bidders:

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.3.6 If fewer than three (3) bids are received bids will not be opened and the project may, at the discretion of the Owner be re-bid. If upon such re-bidding, fewer than three (3) bids are received Bids may be opened.

#### § 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within seventy-two (72) hours after opening of bids. The request to withdraw and the Owner's consideration of such request will be governed by N.C.G.S. § 143-129.1.

### ARTICLE 5 CONSIDERATION OF BIDS

#### § 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

#### § 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

**§ 5.3 Acceptance of Bid (Award)**

**§ 5.3.1** It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

**§ 5.3.2** Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

**§ 5.3.3** All bids will remain subject to acceptance by the Owner for a period of ninety (90) days from bid opening.

**ARTICLE 6 POST-BID INFORMATION**

**§ 6.1 Contractor's Qualification Statement**

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

**§ 6.2 Owner's Financial Capability**

*(Paragraph deleted)*

[Deleted]

**§ 6.3 Submittals**

**§ 6.3.1** After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

**§ 6.3.2** The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

**§ 6.3.3** Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

**§ 6.3.4** Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

**ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND**

**§ 7.1 Bond Requirements**

**§ 7.1.1** The successful Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder, using the payment and performance bond forms provided by Owner.

**§ 7.1.2** Because the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid.

**§ 7.1.3** The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 7.1.4** Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

*(Paragraph deleted)*

**§ 7.2 Time of Delivery and Form of Bonds**

**§ 7.2.1** The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

**§ 7.2.2** [Deleted]

**§ 7.2.3** The bonds shall be dated on or after the date of the Contract.

**§ 7.2.4** The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

**§ 7.3 Certificates of Insurance**

**§ 7.3.1** The successful Bidder shall submit a Certificate of Insurance on a form satisfactory to the Owner within ten (10) calendar days of award of the contract in the amounts required by the Contract Documents.

**ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**

**§ 8.1** Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, as modified, a copy of which is provided in the bidding documents.

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, as modified, a copy of which is provided in the bidding documents.

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, as modified, a copy of which is provided in the bidding documents.

.4 [Deleted]

*(Paragraph deleted)*

.5 Drawings – See included list of drawings.

*(Row deleted)*

*(Table deleted)*

*(Paragraph deleted)*

*(Paragraphs deleted).*8 Other Exhibits: N/A

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

*(Paragraphs deleted)*

*(Table deleted)*

*(Table deleted)(Paragraph deleted)*

.9 Other documents listed below:

*(List here any additional documents that are intended to form part of the Proposed Contract Documents.)*

## **ARTICLE 9 NOTICE TO PROCEED AND PRE-CONSTRUCTION CONFERENCE**

### **§ 9.1 NOTICE TO PROCEED**

**§ 9.1.1** The Owner will issue a Notice to Proceed (NTP) to the Contractor upon award and execution of the Contract. The Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

**§ 9.1.2** The Owner reserves the right to issue an Administrative Notice to Proceed authorizing the Contractor to place orders for products requiring long lead times, or obtain certain permits prior to beginning of any Work. If an Administrative Notice to Proceed is issued, the Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

### **§ 9.2 PRECONSTRUCTION CONFERENCE**

**§ 9.2.1** A preconstruction conference will be scheduled as soon as possible with the successful bidder as soon as practicable after award of the Contract. The Contractor shall attend the pre-construction conference with his prospective project site superintendent, any anticipated major subcontractors and major suppliers. A proposed progress schedule in a form satisfactory to the Owner and a statement of the anticipated monthly progress payments showing the percent of progress each month shall be submitted by the Contractor to the Owner. The Contractor shall also provide at least two (2) local telephone numbers that may be used to contact the Contractor or the Contractor's authorized representative in the event of any emergency after normal business hours. The Contractor shall also provide the name of the Contractor's on-site representative who is OSHA certified.

# Additions and Deletions Report for AIA® Document A701® – 2018

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 17:28:03 ET on 02/01/2023.

## PAGE 1

First Floor Alterations to Hendersonville City Hall  
160 Sixth Avenue East  
Hendersonville, NC 28792  
and

Alterations to City Operations Center  
305 Williams Street  
Hendersonville, NC 28792

...

The City of Hendersonville  
160 Sixth Avenue East  
Hendersonville, NC 28792

...

*(Name, legal status, address, and other information)*

ADW Architects, P.A.  
Six Coliseum Centre  
2815 Coliseum Centre Drive  
Charlotte, NC 28217  
PAGE 2

## 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

### 9 NOTICE TO PROCEED

#### PAGE 3

§ 3.1.1 Bidders shall obtain complete Bidding Documents, ~~as indicated below, Documents~~ from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

~~(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)~~

...

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded. ~~[Deleted]~~

#### PAGE 4



§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven-ten (10) days prior to the date for receipt of Bids. *(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

...

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)*

Complete bidding documents are available from Duncan-Parnell, Inc., (issuing office) at the following:  
[www.dpbidroom.com](http://www.dpbidroom.com).

PAGE 5

Each bid must be accompanied by a cashier's check or a certified check drawn on a bank of trust company insured by the Federal Deposit Insurance Corporation made payable to The City of Hendersonville in an amount of five percent (5%) of the gross amount of the base bid or by a bond in the above amount executed in accordance with and conditioned as prescribed by G.S. 143-129, State of North Carolina. If the successful bidder fails to give satisfactory surety as required by law, the above deposit will be retained by the Owner.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract within ten (10) calendar days of receipt of the Notice of Award or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner. In submitting the bid security, if not submitting cash or a certified check, Bidders are required to use the form provided in the bidding documents.

§ 4.2.3 ~~If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents.~~ The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. ~~However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security.~~

PAGE 6

§ 4.3.1 A Bidder shall submit its Bid as indicated ~~below in the Information for Bidders:~~  
*(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)*

...

§ 4.3.6 If fewer than three (3) bids are received bids will not be opened and the project may, at the discretion of the Owner be re-bid. If upon such re-bidding, fewer than three (3) bids are received Bids may be opened.

...

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to

the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows: ~~(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)~~ seventy-two (72) hours after opening of bids. The request to withdraw and the Owner's consideration of such request will be governed by N.C.G.S. § 143-129.1.

PAGE 7

§ 5.3.3 All bids will remain subject to acceptance by the Owner for a period of ninety (90) days from bid opening.

...

~~A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.~~

~~[Deleted]~~

...

~~§ 7.1.1 If stipulated in the Bidding Documents, the~~ The successful Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder, using the payment and performance bond forms provided by Owner.

~~§ 7.1.2 If Because the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.~~

...

~~(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)~~

PAGE 8

~~§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.~~ ~~[Deleted]~~

...

### § 7.3 Certificates of Insurance

§ 7.3.1 The successful Bidder shall submit a Certificate of Insurance on a form satisfactory to the Owner within ten (10) calendar days of award of the contract in the amounts required by the Contract Documents.

...

- ~~.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.~~

~~(Insert the complete AIA Document number, including year, and Document title.)~~ as modified, a copy of which is provided in the bidding documents.

...

- ~~.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.~~

~~(Insert the complete AIA Document number, including year, and Document title.)~~as modified, a copy of which is provided in the bidding documents.

...

.3 AIA Document A201™-2017, General Conditions of the Contract for Construction, ~~unless otherwise stated below:~~

~~(Insert the complete AIA Document number, including year, and Document title.)~~as modified, a copy of which is provided in the bidding documents.

...

.4 ~~AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:~~~~[Deleted]~~

~~(Insert the date of the E203-2013.)~~

...

.5 Drawings – See included list of drawings.

Number	Title	Date
--------	-------	------

...

~~.6 Specifications~~

Section	Title	Date	Pages
---------	-------	------	-------

~~.7 Addenda:~~

Number	Date	Pages
--------	------	-------

~~.8 Other Exhibits:~~ Other Exhibits: N/A

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

~~AIA Document E204™ 2017, Sustainable Projects Exhibit, dated as indicated below:~~  
~~(Insert the date of the E204-2017.)~~

~~The Sustainability Plan:~~

Title	Date	Pages
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~~Supplementary and other Conditions of the Contract:~~

Document	Title	Date	Pages
----------	-------	------	-------

PAGE 9

## **ARTICLE 9 NOTICE TO PROCEED AND PRE-CONSTRUCTION CONFERENCE**

### **§ 9.1 NOTICE TO PROCEED**

**§ 9.1.1** The Owner will issue a Notice to Proceed (NTP) to the Contractor upon award and execution of the Contract. The Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

**§ 9.1.2** The Owner reserves the right to issue an Administrative Notice to Proceed authorizing the Contractor to place orders for products requiring long lead times, or obtain certain permits prior to beginning of any Work. If an Administrative Notice to Proceed is issued, the Contractor shall not perform any Work prior to the date on which the Notice to Proceed commences.

### **§ 9.2 PRECONSTRUCTION CONFERENCE**

**§ 9.2.1** A preconstruction conference will be scheduled as soon as possible with the successful bidder as soon as practicable after award of the Contract. The Contractor shall attend the pre-construction conference with his prospective project site superintendent, any anticipated major subcontractors and major suppliers. A proposed progress schedule in a form satisfactory to the Owner and a statement of the anticipated monthly progress payments showing the percent of progress each month shall be submitted by the Contractor to the Owner. The Contractor shall also provide at least two (2) local telephone numbers that may be used to contact the Contractor or the Contractor's authorized representative in the event of any emergency after normal business hours. The Contractor shall also provide the name of the Contractor's on-site representative who is OSHA certified.

## **Certification of Document's Authenticity**

**AIA® Document D401™ – 2003**

I, \_\_\_\_\_, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 17:28:03 ET on 02/01/2023 under Order No. 2114310630 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ – 2018, Instructions to Bidders, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

\_\_\_\_\_  
*(Signed)*

\_\_\_\_\_  
*(Title)*

\_\_\_\_\_  
*(Dated)*



**INFORMATION FOR BIDDERS**

1. **BID LOGISTICS.** Bids will be received by the Assistant City Manager for the City of Hendersonville or authorized representative at the City Operations Center, 305 Williams Street, Hendersonville, NC 28792 until 2:00 p.m. on March 15, 2023 and then at said office publicly opened and read aloud.

A Pre-Bid Meeting will be held at the City Operations Center, 305 Williams Street, Hendersonville, NC 28792 on February 14, 2023 at 11:00 a.m.

Each Bid must be submitted in a sealed envelope, addressed to Brian Pahle, Assistant City Manager. Each sealed envelope containing a Bid must be plainly marked on the outside as Bid for Hendersonville City Hall First Floor Alterations and Alterations to City Operations Center, and the envelope should bear on the outside the Bidder's name, address, and license number. Absolutely no bids will be accepted after 2:00 p.m. local time.

2. **SITE INSPECTION.** The contractor shall examine the premises to determine the extent of work involved and the conditions under which he must operate in performing his work. The submission of a Bid will be construed as evidence that such an examination has been made, and no subsequent allowance will be made in this connection on behalf of the contractor for any error or negligence on his part.
3. **SINGLE PRIME CONTRACTS.** The Owner will accept bids under the single-prime contract system only
4. **SINGLE-PRIME CONTRACTS.** All single-prime bidders must identify on their bid the sub-contractors they have selected for the subdivisions or branches of work for:
  - (1) Heating, ventilating, and air conditioning;
  - (2) Plumbing;
  - (3) Electrical;

No contractor whose bid is accepted shall substitute any person as subcontractor in the place of the subcontractor listed in the original bid except with the approval of the Owner for good cause as shown by the contractor.

The terms, conditions and requirements of each contract between the Bidder and the subcontractor set out above performing work under a subdivision or branch of work listed above shall be substantially the same as the terms, conditions and requirements of the contract between the Bidder and the Owner.

5. **BID FORM.** All Bids must be made on the required Bid form all spaces for Bid prices must be filled in, in ink or typewritten, and the Bid form must be fully completed and executed when submitted. Only one copy of the Bid form is required.
6. **BID ACCEPTANCE/REJECTION.** The Owner may waive informalities, irregularities, or minor defects in a Bid received and accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

The Owner shall have the right to accept all, some, or none of the Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

7. The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Owner or any other person shall

not affect the risk or obligations assumed by the Contractor or relieve the Contractor from fulfilling any of the conditions of the contract.

8. **LIQUIDATED DAMAGES.** The Contractor is required to complete the project within 250 calendar days from notice to proceed. It shall be the responsibility of the Contractor to pursue the orderly progression of all work until the project is completed. Should the Contractor fail to assure the completion of the total project satisfactorily within the time period specified in the contract, the Contractor shall be charged with liquidated damages at a rate of **Five Hundred Dollars (\$500)** per calendar day until the total project is successfully completed. Completion of the project shall be defined as substantial completion (as described in AIA document A201-2017).

If, through the acts or omissions of the Contractor, the sub-contractor should suffer loss or damage on the work, the Contractor agrees to settle with such other sub-contractor by agreement if such sub-contractor will so settle.

It will be the responsibility of the Contractor to produce, within ten (10) working days after receipt of notice to proceed with work, a Proposed Work Progress Schedule to include (among other things) specifications as to time frame for work to be done. The Contractor shall submit said schedule to the Architect.

9. **BID QUALIFICATION.** The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.
10. **CONTRACT ADDITIONS (Extra Work).** As the work progresses the contractor may be required to perform extra work as required by the Owner and/or the Architect. The mark-up for this extra work shall be cost plus a maximum of 15% for subcontractors and 5% for General Contractors. If the work is provided by the General Contractor a maximum of 15% mark-up shall be allowed. This mark-up shall include all overhead, profit/fee, supervision, etc.
11. **CONTRACT REDUCTION.** The Contractor should note that the Owner retains the exclusive right to reduce any or all contracts referred to within the contract documents for budgetary or other reasons. Should the Owner choose to reduce any or all said contracts, said Contractor provide a credit of 5% in addition to the cost of the work to account for the reduction in overhead, profit/fee, supervision, etc..
12. **CONTRACTORS LICENSE.** All firms for the general portion of the contract must possess an up-to-date **North Carolina Contractors License to do work in North Carolina** plus any other applicable licenses. All firms bidding on trade contracts or subcontracting portions of the general or a trade contract must possess all required applicable licenses for work in **North Carolina**.
13. **ADA REQUIREMENTS.** The Contractor during the period of this contract will be required to comply with all provisions of the Americans with Disabilities Act.
14. **SALES AND USE TAX.** Upon submission of each partial payment or request for payment, the Contractor must furnish for themselves, as well as for all subcontractors, a minimum of (4) original, notarized pay requests. Also, include a minimum of (4) original, notarized tax statements stating the cost of the property purchased from each vendor and the amount of sales and/or use taxes paid thereon and a minimum of (3) copies of all associated invoices. In the event the Contractor makes several purchases from the same vendor, such certified statements must indicate the invoice numbers, the inclusive taxes paid thereon. Such statements must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of sales or use tax paid thereon by the Contractor. Similar certified statements by his sub-contractors must be obtained by the Contractor and furnished to the Owner. The amounts of the prices of the items state sales tax, and County or City sales tax, and use tax shall be totaled at



the bottom of each page, and a grand total at the bottom of the page. Sales tax on secured items shall be reported monthly. Use the State and County Sales/Use Tax Statement & Certification included in section 01 29 13.

15. **WEATHER DELAY.** Contractor's sole remedy for delays caused by abnormally adverse weather shall be an extension of time. In order to demonstrate delay as the result of abnormally adverse weather, the Contractor shall demonstrate that the critical path activities have been delayed. In order to be considered a day of delay, the Contractor shall demonstrate that work was prevented on critical path activities for more than fifty percent (50%) of the day of adverse weather. The Contractor is also required to provide evidence that more than .1 inches of rain occurred on the site for each of the days the contractor is claiming. Weather days occurring on holidays, Saturday, or Sundays will not be considered as delays significant to the Contract completing date, and shall be included in the Bid (see listing of days and months to be included). The request for a weather delay shall be made within 21 days after the months end; all requests after this date will be rejected.

**NUMBER OF WEATHER DAYS TO BE INCLUDED AT EACH MONTH WITHOUT CLAIM FOR DELAY.**

January (7)  
February (6)  
March (7)  
April (6)  
May (7)  
June (9)  
July (10)  
August (9)  
September (5)  
October (5)  
November (5)  
December (5)

16. **BUILDERS RISK INSURANCE.** Shall be provided by the Contractor.
17. **NON-DISCRIMINATION IN EMPLOYMENT.** During the performance of this Contract, the Contractor agrees as follows:
- The Contractor will not discriminate against any employee or applicant for employment because of race, color or religion, sex, handicap or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated equal during employment without regard to race, color, sex, religion, handicap or national origin. Such action will include, but not be limited to, the following: employment, upgrading, demotion, or transfer, recruitment, or recruitment advertising, layoff or termination; rates of pay or other forms of compensation: and selection of training, including apprenticeship.
18. **DAMAGES.** The Contractor shall indemnify the Owner and Architect for any claim or legal action against the Owner and Architect by any Subcontractor or supplier as a result of injury or damages caused by that Contractor to others. The Contractor responsible for the injury must defend, indemnify and save the Owner and Architect harmless, including paying judgments against the Owner and Architect, all costs and expenses, legal or otherwise, incurred by the Owner and Architect in defending the suit.
19. **NONCOLLUSION AFFIDAVIT.** All Bidders must include with their Bid the properly executed Noncollusion Affidavit, included in the bidding documents.
20. **SOLICIATION OF MINORITY BUSINESSES.** For this project the City is utilizing the State's verifiable percentage goal of ten percent (10%). The State's guidelines for minority participation are included in the bidding documents. All bidders will be required to submit with their bids an

00 21 19 – INFORMATION FOR BIDDERS

affidavit stating that such bidder has made a good faith effort to solicit historically underutilized business in compliance with N.C.G.S. § 143-128.2, listing the HUB businesses that it will use on the project, and the total dollar value of the bid that will be performed by the minority businesses. The form of affidavit (Affidavit A) is included in the bidding documents. Good faith efforts include those efforts as specified in N.C.G.S. § 143-128.2(f)(1)-(10). In order to be considered responsive, a bidder must achieve a total of 50 points on Affidavit A. A contractor that performs all of the work with its own workforce may submit an affidavit to that effect in lieu of the affidavit (Affidavit B).

The apparent lowest responsive, responsible bidder will also be required to provide, within three (3) calendar days of being notified that they are the apparent low bidder (but before a formal Notice of Award has been issued) the information required by N.C.G.S. § 143-128.2(c)(1) on Affidavits C and D.

In order to be counted as a minority business under this section, a minority business must meet the definition of minority business as contained in N.C.G.S. § 143-128.2(g)(1), and such business must also be registered as a historically underutilized business on the North Carolina State HUB website.

END OF SECTION 00 21 19

SECTION 00 21 20 - MINORITY BUSINESS POLICY FORMS



# Identification of HUB Certified/ Minority Business Participation

I, \_\_\_\_\_,  
(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	*Minority Category	**HUB Certified (Y/N)

\*Minority categories: Black, African American (B), Hispanic (H), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (D)

\*\* HUB Certification with the state HUB Office required to be counted toward state participation goals.

The total value of minority business contracting will be (\$)\_\_\_\_\_.

# State of North Carolina AFFIDAVIT A – Listing of Good Faith Efforts

County of \_\_\_\_\_

(Name of Bidder)

Affidavit of \_\_\_\_\_

I have made a good faith effort to comply under the following areas checked:

**Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive.** (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

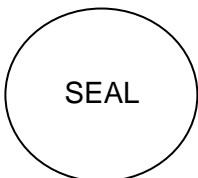
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# State of North Carolina --AFFIDAVIT B-- Intent to Perform Contract with Own Workforce.

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_

(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the \_\_\_\_\_

\_\_\_\_\_ contract.

(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

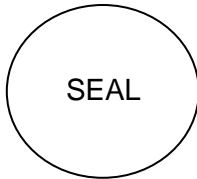
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

# State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by HUB Certified/Minority Businesses

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If the portion of the work to be executed by HUB certified/minority businesses as defined in GS143-128.2(g) and 128.4(a),(b),(e) is equal to or greater than 10% of the bidders total contract price, then the bidder must complete this affidavit.  
 This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of \_\_\_\_\_ I do hereby certify that on the \_\_\_\_\_  
 (Name of Bidder)

\_\_\_\_\_ (Project Name)  
 Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**\*\* HUB Certification with the state HUB Office required to be counted toward state participation goals.**

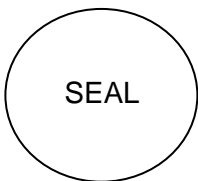
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_



# State of North Carolina AFFIDAVIT D – Good Faith Efforts

County of \_\_\_\_\_

**(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)**

If the goal of 10% participation by HUB Certified/ minority business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of \_\_\_\_\_ I do hereby certify that on the \_\_\_\_\_  
(Name of Bidder)

Project ID# \_\_\_\_\_ (Project Name) Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with HUB certified/ minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*Minority Category	**HUB Certified Y/N	Work Description	Dollar Value

\*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

**\*\* HUB Certification with the state HUB Office required to be counted toward state participation goals.**

Examples of documentation that may be required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

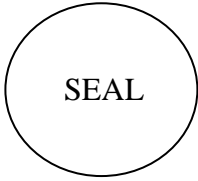
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public \_\_\_\_\_

My commission expires \_\_\_\_\_

## **GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS**

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of \$300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

### **SECTION A: INTENT**

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

### **SECTION B: DEFINITIONS**

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
  - a. Black, that is, a person having origins in any of the black racial groups in Africa;
  - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
  - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
  - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
  - e. Female
2. Minority Business - means a business:
  - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
  - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - means State and all public subdivisions and local governmental units.
5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

## **SECTION C: RESPONSIBILITIES**

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
- (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
- (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
- (5) The HUB Office also oversees the minority business program by:
  - a. Monitoring compliance with the program requirements.
  - b. Assisting in the implementation of training and technical assistance programs.
  - c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
  - d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office

The State Construction Office will be responsible for the following:

- a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
  - (1) Project description and location;
  - (2) Locations where bidding documents may be reviewed;
  - (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
  - (4) Date, time and location of the bid opening.
  - (5) Date, time and location of prebid conference, if scheduled.
- b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

- c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
- d. Reviewing of minority business requirements at Preconstruction conference.
- e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
- f. Provide statistical data and required reports to the HUB Office.
- g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

### 3. Owner

Before awarding a contract, owner shall do the following:

- a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
- b. Attend the scheduled prebid conference.
- c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
  - 1. A description of the work for which the bid is being solicited.
  - 2. The date, time, and location where bids are to be submitted.
  - 3. The name of the individual within the owner's organization who will be available to answer questions about the project.
  - 4. Where bid documents may be reviewed.
  - 5. Any special requirements that may exist.
- d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
- e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
- g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
- h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
- i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

### 4. Designer

Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

- e. During construction phase of the project, review “MBE Documentation for Contract Payment” – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
- f. Make documentation showing evidence of implementation of Designer’s responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

- a. Attend the scheduled prebid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
  - (1) A description of the work for which the subbid is being solicited.
  - (2) The date, time and location where subbids are to be submitted.
  - (3) The name of the individual within the company who will be available to answer questions about the project.
  - (4) Where bid documents may be reviewed.
  - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
- g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
- h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), “MBE Documentation for Contract Payment” – (Appendix E), for designer’s review.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

- k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
- l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

**SECTION 4: DISPUTE PROCEDURES**

It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

**SECTION 5:** These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: [www.nc-sco.com](http://www.nc-sco.com)

**SECTION 6:** In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

## MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

### APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: <http://www.nc-sco.com>

### MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

**OR**

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

**OR**

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

**The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.**



## **MINIMUM COMPLIANCE REQUIREMENTS:**

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

- (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
- (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
- (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- (5) Attending any prebid meetings scheduled by the public owner.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

**APPENDIX E**

**MBE DOCUMENTATION FOR CONTRACT PAYMENTS**

Prime Contractor/Architect: \_\_\_\_\_

Address & Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

Pay Application #: \_\_\_\_\_ Period: \_\_\_\_\_

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

\*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: \_\_\_\_\_ Approved/Certified By: \_\_\_\_\_

Name

\_\_\_\_\_

Title

\_\_\_\_\_

Signature

**SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT**

**SECTION 00 41 13 - BID FORM – STIPULATED SUM – SINGLE PRIME**

**PROJECT:** Hendersonville City Hall First Floor Alterations  
160 Sixth Avenue East  
Hendersonville, NC 28792

and

Alterations to City Operations Center  
305 Williams Street  
Hendersonville, NC 28792

**NAME OF BIDDER:** \_\_\_\_\_.

**BUSINESS ADDRESS:** \_\_\_\_\_.

**LICENSE NO.** \_\_\_\_\_ **DATE** \_\_\_\_\_.

This Contractor hereby proposes to furnish all materials, labor and equipment necessary to provide the Owner with a completed project as described in these specifications and as shown, detailed or noted on the drawings listed herein and to include any information provided in addenda as indicated on this proposal form.

**A. HENDERSONVILLE CITY HALL FIRST FLOOR OPERATIONS**

**a. CONTRACT PRICE:**

**Total Base Bid:**.....(\$ \_\_\_\_\_)

**b. ALTERNATES:** As described on Drawings and in Specifications.

*Alternate No. 1 Bullet Resistant Customer Service Windows (Circle) + / - \$ \_\_\_\_\_*

**B. HENDERSONVILLE CITY HALL FIRST FLOOR OPERATIONS**

**a. CONTRACT PRICE:**

**Total Base Bid:**.....(\$ \_\_\_\_\_)

**b. ALTERNATES:** As described on Drawings and in Specifications.

*Alternate No. 1 New Finishes in 2<sup>nd</sup> Floor Bathrooms (Circle) + / - \$ \_\_\_\_\_*

*Alternate No.2 Alterations to 2<sup>nd</sup> Floor Bathrooms (Circle) + / - \$ \_\_\_\_\_*

*Alternate No. 3 Additional Solar Tubular Lighting (Circle) + / - \$ \_\_\_\_\_*

**C. UNIT PRICES:**

The undersigned quotes the following unit prices to be utilized in making adjustments to the Contract sum should the addition or omission of work required by the Contract Documents be necessary. Amount listed for unit prices will apply throughout the life of the Contract.

**UP #1** Removal of unsuitable material, per cubic yard \$ \_\_\_\_\_

**UP #2** In-place structural fill, per cubic yard \$ \_\_\_\_\_

**UP #3** In-Place Concrete paving (4" thickness) per square foot \$ \_\_\_\_\_

**D. TIME OF COMPLETION**

The undersigned further agrees to begin work immediately upon receipt of the “Notice to Proceed” with an adequate force, carry the work forward as expeditiously as possible, and complete the work in 250 days.

**E. QUALIFICATIONS AND CLARIFICATIONS:**

Contractor shall obtain any clarifications with the Owner in writing prior to the bid date. Bid qualifications are not permitted.

**F. ADDENDUMS:**

Contractor shall acknowledge receipt of all Addenda to the drawings and specifications by affixing his signature in the spaces provided below:

	<b>Date</b>	<b>Signature</b>
Addendum No. 1	_____	_____
Addendum No. 2	_____	_____
Addendum No. 3	_____	_____
Addendum No. 4	_____	_____
Addendum No. 5	_____	_____

**G. LISTING OF MAJOR SUBCONTRACTORS:**

**Plumbing Contractor:** \_\_\_\_\_

**Mechanical Contractor:** \_\_\_\_\_

**Electrical Contractor:** \_\_\_\_\_

**H. CONTRACTOR’S LICENSE:**

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of North Carolina, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full.

**I. CONTRACTOR’S REPRESENTATIONS:**

The undersigned further agrees that this Bid Proposal shall be valid for a period of ninety (90) days from the date of receipt of the Bid Proposal and that if this Bid Proposal is accepted by the City within this period, the Bidder will execute the Construction Agreement provided as part of the Contract Documents.

The undersigned further agrees to begin the work promptly upon receipt of the Notice to Proceed and to pursue the work with an adequate work force to complete the work within the time specified in the Contract Documents. Liquidated Damages of \$500.00 per calendar day are hereby agreed upon as an assessment from the Contractor for failure to complete the work within the time period stated herein.

Respectfully submitted this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.  
Signature of Contractor or  
Authorized Agent:

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**License:** \_\_\_\_\_

**Witness:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Note:**

- 1. Bids will be received at 2 p.m. on Wednesday March 15, 2023 in the Multipurpose room at the City Operations Center, 305 Williams Street, Hendersonville, NC 28792.***





**NON-COLLUSION AFFIDAVIT**

I, on behalf of the Bidder, being first duly sworn or affirmed, do hereby represent on behalf of the Bidder that the Bid Proposal submitted was made without collusion or fraud and that neither I, nor anyone else affiliated with the Bidder to my knowledge, have offered or received any kickbacks or inducements from any other supplier, manufacturer or subcontractor in connection with their Bid Proposal, and neither I, nor anyone else affiliated with the Bidder to my knowledge, have conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

This the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

BIDDER: \_\_\_\_\_

\_\_\_\_\_  
Print Name:

Print Title:

State of \_\_\_\_\_

County of \_\_\_\_\_

Sworn to or subscribed before me this the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

(Official Seal)

\_\_\_\_\_  
Notary Public

Print Name: \_\_\_\_\_





**FORM OF BID BOND**

KNOW ALL MEN BY THESE PRESENTS THAT \_\_\_\_\_

\_\_\_\_\_ as principal, and \_\_\_\_\_, as surety, who is duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of North Carolina\* through \_\_\_\_\_ as obligee, in the penal sum of \_\_\_\_\_ DOLLARS, lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this \_\_\_\_ day of \_\_\_\_ 20\_\_

WHEREAS, the said principal is herewith submitting proposal for and the principal desires to file this bid bond in lieu of making the cash deposit as required by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that if the principal shall be awarded the contract for which the bid is submitted and shall execute the contract and give bond for the faithful performance thereof within ten days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so execute such contract and give performance bond as required by G.S. 143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by G.S. 143-129.1

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\_\_\_\_\_(SEAL)

\*(Community college projects: Delete State of North Carolina as owner and replace with community college name.)

SECTION 00 52 13 - AGREEMENT FORM – STIPULATED SUM (SINGLE PRIME)

AIA DOCUMENT A101



# DRAFT AIA® Document A101® - 2017

## Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the  day of  in the year   
(In words, indicate day, month and year.)

BETWEEN the Owner:  
(Name, legal status, address and other information)

«City of Hendersonville  
160 Sixth Avenue East  
Hendersonville, NC »« »

« »  
« »  
« »

and the Contractor:  
(Name, legal status, address and other information)

« »« »  
« »  
« »  
« »

for the following Project:  
(Name, location and detailed description)

«First Floor Alterations to City Hall  
160 Sixth Avenue East  
Hendersonville, NC 28792

And

Alterations to City Operations Center  
305 Williams Street  
Hendersonville, NC 28792 »

« »  
« »

The Architect:  
(Name, legal status, address and other information)

«ADW Architects, P.A.  
Six Coliseum Centre  
2815 Coliseum Centre Drive  
Charlotte, NC 28217 »« »

« »  
« »  
« »

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

**ELECTRONIC COPYING** of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

## TABLE OF ARTICLES

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### ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

### ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

### ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

*(Check one of the following boxes.)*

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:  
*(Insert a date or a means to determine the date of commencement of the Work.)*

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

**§ 3.3 Substantial Completion**

**§ 3.3.1** Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

*(Check one of the following boxes and complete the necessary information.)*

[  ] Not later than « TWO HUNDRED AND FIFTY CONSECUTIVE » ( « 250 » ) calendar days from the date of commencement of the Work.

[  ] By the following date: « »

**§ 3.3.2** Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
TBD	

**§ 3.3.3** If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

**ARTICLE 4 CONTRACT SUM**

**§ 4.1** The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be « » (\$ « » ), subject to additions and deductions as provided in the Contract Documents.

**§ 4.2 Alternates**

**§ 4.2.1** Alternates, if any, included in the Contract Sum:

Item	Price

**§ 4.2.2** Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.

*(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)*

Item	Price	Conditions for Acceptance

**§ 4.3** Allowances, if any, included in the Contract Sum:

*(Identify each allowance.)*

Item	Price

**§ 4.4** Unit prices, if any:

*(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price per Unit (\$0.00)

**§ 4.5** Liquidated damages, if any:

*(Insert terms and conditions for liquidated damages, if any.)*

« « The timely completion of the Work is critical to the Owner and time is of the essence with respect to the Work and every deadline in the Contract Documents. In the event that Construction Manager does not achieve Substantial Completion of the Work within the Contract Time as established by the Guaranteed Maximum Price Amendment to

this Agreement (taking into account extensions of the Contract Time as set forth herein), Construction Manager shall pay Owner liquidated damages in the amount of **FIVE HUNDRED DOLLARS (\$500.00) per day** for each for each day that Contractor fails to achieve Substantial Completion of the Work. Contractor acknowledges that these liquidated damages are fair and equitable and do not constitute a penalty in light of the difficulty of accurately determining the full extent of Owner's damages if this Project is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that Contractor shall pay Owner liquidated damages as set forth above for delays related to Substantial Completion of the Work.

»

#### § 4.6 Other:

*(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)*

« 4.6.1. **CONTRACT ADDITIONS (Extra Work).** As the work progresses the contractor may be required to perform extra work as required by the Owner and/or the Architect. The mark-up for this extra work shall be cost plus a maximum of 15% for subcontractors and 5% for General Contractors. If the work is provided by the General Contractor a maximum of 15% mark-up shall be allowed. This mark-up shall include all overhead, profit/fee, supervision, etc.

4.6.2 **CONTRACT REDUCTION.** The Contractor should note that the Owner retains the exclusive right to reduce any or all contracts referred to within the contract documents for budgetary or other reasons. Should the Owner choose to reduce any or all said contracts, said Contractor provide a credit of 5% in addition to the cost of the work to account for the reduction in overhead, profit/fee, supervision, etc.. »

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than « » ( « » ) days after the Architect receives the Application for Payment.

*(Federal, state or local laws may require payment within a certain period of time.)*

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;



- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

### § 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner will withhold retainage as follows:

5.1.7.1.1 Until final payment, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments. If the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in the absence of other good and sufficient reason, when the total project is shown to be 50 percent or more complete in the Application for Payment, the Architect with concurrence by the Owner may, without reduction of previous retainage certify any remaining progress payments for each Work category to be paid in full.

5.1.7.1.2 The full Contract retainage may be reinstated if the manner of completion of the Work and its progress does not remain satisfactory to the Architect (or if the Surety (if any) withholds its consent), or for other good and sufficient reasons.

<< >>

§ 5.1.7.1.1 The following items are not subject to retainage:

*(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)*

<< >>

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows: See 5.1.7.2, above.

*(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)*

<< >>

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

*(Insert any other conditions for release of retainage upon Substantial Completion.)*

<< >>

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.1.10 SALES AND USE TAX. Upon submission of each partial payment or request for payment, the Contractor must furnish for themselves, as well as for all subcontractors, a minimum of (4) original, notarized pay requests. Also, include a minimum of (4) original, notarized tax statements stating the cost of the property purchased from each vendor and the amount of sales and/or use taxes paid thereon and a minimum of (3) copies of all associated invoices. In the event the Contractor makes several purchases from the same vendor, such certified statements must indicate the invoice numbers, the inclusive taxes paid thereon. Such statements must also include the cost of any tangible personal property withdrawn from the Contractor’s warehouse stock and the amount of sales or use tax paid thereon by the Contractor. Similar certified statements by his sub-contractors must be obtained by the Contractor and furnished to the Owner. The amounts of the prices of the items state sales tax, and County or City sales tax, and use tax shall be totaled at the bottom of each page, and a grand total at the bottom of the page. Sales tax on secured items shall be reported monthly. Use the State and County Sales/Use Tax Statement & Certification included in section 01 29 13.

**§ 5.2 Final Payment**

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect’s final Certificate for Payment, or as follows:

« »

**§ 5.3 Interest**

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

« Five percent per annum » % «(5%)»

**ARTICLE 6 DISPUTE RESOLUTION**

**§ 6.1 Initial Decision Maker**

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

« »

« »

« »

« »

**§ 6.2 Binding Dispute Resolution**

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

[  ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[  ] Litigation in a court of competent jurisdiction

[  ] Other (*Specify*)

« See Paragraph 15.3 of the General Conditions, including all subparagraphs, as modified. »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

## ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:  
(*Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.*)

« »

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:  
(*Name, address, email address, and other information*)

« »  
« »  
« »  
« »  
« »  
« »

§ 8.3 The Contractor’s representative:  
(*Name, address, email address, and other information*)

« »  
« »  
« »  
« »  
« »  
« »

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

## § 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in the General Conditions of Contract as modified.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

« »

§ 8.7 Other provisions:

«§ 8.7.1 NON-DISCRIMINATION IN EMPLOYMENT. During the performance of this Contract, the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, color or religion, sex, handicap or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated equal during employment without regard to race, color, sex, religion, handicap or national origin. Such action will include, but not be limited to, the following: employment, upgrading, demotion, or transfer, recruitment, or recruitment advertising, layoff or termination; rates of pay or other forms of compensation: and selection of training, including apprenticeship.

§ 8.7.2 DAMAGES. The Contractor shall indemnify the Owner and Architect for any claim or legal action against the Owner and Architect by any Subcontractor or supplier as a result of injury or damages caused by that Contractor to others. The Contractor responsible for the injury must defend, indemnify and save the Owner and Architect harmless, including paying judgments against the Owner and Architect, all costs and expenses, legal or otherwise, incurred by the Owner and Architect in defending the suit.

§ 8.7.3 ADA REQUIREMENTS. The Contractor during the period of this contract will be required to comply with all provisions of the Americans with Disabilities Act. »

## ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA A701 Instructions to Bidders and 00 21 19 Information for Bidders

« »

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .8** Other Exhibits:  
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

**EXHIBIT B WEATHER DELAYS EXHIBIT**

« »

The Sustainability Plan:

Title	Date	Pages

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

- .9** Other documents, if any, listed below:  
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

« »

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
**OWNER** (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
**CONTRACTOR** (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)

EXHIBIT B  
WEATHER DELAYS

Contractor's sole remedy for delays caused by abnormally adverse weather shall be an extension of time. In order to demonstrate delay as the result of abnormally adverse weather, the Contractor shall demonstrate that the critical path activities have been delayed. In order to be considered a day of delay, the Contractor shall demonstrate that work was prevented on critical path activities for more than fifty percent (50%) of the day of adverse weather. The Contractor is also required to provide evidence that more than .1 inches of rain occurred on the site for each of the days the contractor is claiming. Weather days occurring on holidays, Saturday, or Sundays will not be considered as delays significant to the Contract completing date, and shall be included in the Bid (see listing of days and months to be included). The request for a weather delay shall be made within 21 days after the months end; all requests after this date will be rejected.

NUMBER OF WEATHER DAYS TO BE INCLUDED AT EACH MONTH WITHOUT CLAIM FOR DELAY.

- January (7)
- February (6)
- March (7)
- April (6)
- May (7)
- June (9)
- July (10)
- August (9)
- September (5)
- October (5)
- November (5)
- December (5)



# DRAFT AIA® Document A101® - 2017

## Exhibit A

### Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the « » day of « » in the year « »  
(In words, indicate day, month and year.)

for the following **PROJECT**:  
(Name and location or address)

«First Floor Alterations to Hendersonville City Hall  
160 Sixth Avenue East  
Hendersonville, NC 28792

And

Alterations to City Operations Center  
305 Williams Street  
Hendersonville, NC 28792 »

« »

#### THE OWNER:

(Name, legal status and address)

«The City of Hendersonville  
160 Sixth Avenue East  
Hendersonville, NC 28792 »« »  
« »

#### THE CONTRACTOR:

(Name, legal status and address)

« »« »  
« »

#### TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

#### ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™-2017, General Conditions of the Contract for Construction.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®-2017, General Conditions of the Contract for Construction. Article 11 of A201®-2017 contains additional insurance provisions.

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**ARTICLE A.2 OWNER'S INSURANCE**

**§ A.2.1 General**

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

**§ A.2.2 Liability Insurance**

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

**§ A.2.3 Required Property Insurance**

**§ A.2.3.1** Contractor shall obtain Property/Builder's risk insurance pursuant to Section A.3.3.2.1, and all obligations set forth in A.2.3, with the exception of A.2.3.3, shall apply to Contractor, not Owner. The Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

**§ A.2.3.1.1 Causes of Loss.** The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:

*(Indicate below the cause of loss and any applicable sub-limit.)*

Causes of Loss	Sub-Limit

**§ A.2.3.1.2 Specific Required Coverages.** The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:

*(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)*

Coverage	Sub-Limit

**§ A.2.3.1.3** Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

**§ A.2.3.1.4 Deductibles and Self-Insured Retentions.** If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

**§ A.2.3.2 Occupancy or Use Prior to Substantial Completion.** The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance



of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

### § A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, “all-risks” property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

### § A.2.4 Optional Extended Property Insurance.

The Owner shall purchase and maintain the insurance selected and described below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)*

[  ] **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner’s property, or the inability to conduct normal operations due to a covered cause of loss.

<< >>

[  ] **§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

<< >>

[  ] **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

<< >>

[  ] **§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

<< >>

[  ] **§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

<< >>

[  ] **§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured’s business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

<< >>

[  ] **§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including

construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

<< >>

### § A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)*

[  ] § A.2.5.1 **Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information. *(Indicate applicable limits of coverage or other conditions in the fill point below.)*

<< >>

[  ] § A.2.5.2 **Other Insurance**  
*(List below any other insurance coverage to be provided by the Owner and any applicable limits.)*

Coverage

Limits

## ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

### § A.3.1 General

§ A.3.1.1 **Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 **Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 **Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

### § A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)*

**§ A.3.2.2 Commercial General Liability**

**§ A.3.2.2.1** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than « one million dollars » (\$ «1,000,000.00 ») each occurrence, « three million dollars » (\$ « 3,000,000.00 ») general aggregate, and « three million dollars » (\$ « 3,000,000.00 ») aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

**§ A.3.2.2.2** The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

**§ A.3.2.3** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than «one million dollars » (\$ « 1,000,000.00 ») per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

**§ A.3.2.4** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

**§ A.3.2.5** Workers' Compensation at statutory limits.

**§ A.3.2.6** Employers' Liability with policy limits not less than «on emillion dollars » (\$ « 1,000,000.00 ») each accident, « one million dollars » (\$ « 1,000,000.00 ») each employee, and « » (\$ « ») policy limit.

**§ A.3.2.7** Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than « two million dollars » (\$ « 2,000,000.00 » ) per claim and « two million dollars » (\$ « 2,000,000.00 » ) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than « one million dollars » (\$ « 1,000,000.00 » ) per claim and « three million dollars » (\$ « 3,000,000.00 » ) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than « two million dollars » (\$ « 2,000,000.00 » ) per claim and « three million dollars » (\$ « 3,000,000.00 » ) in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « » ) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « » ) in the aggregate.

### § A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)*

#### « Pollution Liability Insurance

Contractor shall obtain and maintain pollution liability insurance covering bodily injury, property damage and environmental damage resulting from sudden or gradual accidental pollution and related cleanup costs arising out of the work or services to be performed under this Contract, with the following limits:

Combined Single Limit	<b>\$1,000,000 per claim</b>
Annual Aggregate Limit	<b>\$3,000,000</b>

Owner and its Board, officers, employees, as well as authorized agents, and affiliates, are to be named as additional insureds in the Contractor's policy with respect to this Project.

This insurance will apply as primary insurance with respect to any other insurance or self-insurance that Owner may have or elect to carry.

»

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

*(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)*

[  ] § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner

shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below: *(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)*

« »

- [ « » ] **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « » ) in the aggregate, for Work within fifty (50) feet of railroad property.
- [ « » ] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « » ) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.
- [ « » ] **§ A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.**
- [ « » ] **§ A.3.3.2.5 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.**
- [ « » ] **§ A.3.3.2.6 Other Insurance**  
*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

**Coverage**

**Umbrella Excess Liability**

Contractor shall provide umbrella and/or excess liability insurance on an "occurrence" basis providing "following form" coverage for the underlying coverages outlined above with the following minimum limits:

**Limits**

Each Occurrence Limit  
**\$15,000,000**  
Aggregate Limit  
**\$15,000,000**

**§ A.3.4 Performance Bond and Payment Bond**

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:  
*(Specify type and penal sum of bonds.)*

Type

Payment Bond

Performance Bond

Penal Sum (\$0.00)

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

**ARTICLE A.4 SPECIAL TERMS AND CONDITIONS**

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

« »

# LETTERBOARD

**FORM OF PERFORMANCE BOND**

Date of Contract: \_\_\_\_\_

Date of Execution: \_\_\_\_\_

Name of Principal  
(Contractor) \_\_\_\_\_

Name of Surety: \_\_\_\_\_

Name of Contracting  
Body: \_\_\_\_\_

Amount of Bond: \_\_\_\_\_

Project

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, and including the Correction Period provided in Paragraph 15.08 of the General Conditions of the Contract, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in \_\_\_\_\_ counterparts.

Witness:

\_\_\_\_\_  
(Proprietorship or Partnership)

Attest: (Corporation)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Corp. Sec. or Asst. Sec. only)

(Corporate Seal)

\_\_\_\_\_  
Contractor: (Trade or Corporate Name)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Owner, Partner, or Corp. Pres. or Vice Pres. only)

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

Witness:

\_\_\_\_\_

Countersigned:

\_\_\_\_\_

\_\_\_\_\_  
(N.C. Licensed Resident Agent)

\_\_\_\_\_

\_\_\_\_\_  
Name and Address-Surety Agency

\_\_\_\_\_

\_\_\_\_\_  
Surety Company Name and N.C.  
Regional or Branch Office Address

(Surety Corporate Seal)



**FORM OF PAYMENT BOND**

Date of Contract: \_\_\_\_\_  
Date of Execution: \_\_\_\_\_  
Name of Principal  
(Contractor) \_\_\_\_\_  
Name of Surety: \_\_\_\_\_  
Name of Contracting  
Body: \_\_\_\_\_  
Amount of Bond: \_\_\_\_\_  
Project \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in \_\_\_\_\_ counterparts.

Witness:

\_\_\_\_\_  
(Proprietorship or Partnership)

Attest: (Corporation)

Pres. only)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Corp. Sec. or Asst. Sec.. only)

(Corporate Seal)

\_\_\_\_\_  
Contractor: (Trade or Corporate Name)

By: \_\_\_\_\_

Title \_\_\_\_\_  
(Owner, Partner, or Corp. Pres. or Vice

Witness:

\_\_\_\_\_

\_\_\_\_\_  
(Surety Company)

By: \_\_\_\_\_

Title: \_\_\_\_\_  
(Attorney in Fact)

Countersigned:

\_\_\_\_\_

(Surety Corporate Seal)

\_\_\_\_\_  
(N.C. Licensed Resident Agent)

\_\_\_\_\_

\_\_\_\_\_  
Name and Address-Surety Agency

\_\_\_\_\_

\_\_\_\_\_  
Surety Company Name and N.C.  
Regional or Branch Office Address

SECTION 00 72 00 – GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

AIA DOCUMENT A201



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 **AIA<sup>®</sup> Document A201<sup>®</sup> – 2017****General Conditions of the Contract for Construction**

for the following PROJECT:  
(Name and location or address)

**THE OWNER:**  
(Name, legal status and address)

**THE ARCHITECT:**  
(Name, legal status and address)

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**ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 1.1 Basic Definitions**

#### **§ 1.1.1 The Contract Documents**

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

#### **§ 1.1.2 The Contract**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### **§ 1.1.3 The Work**

The term "Work" means the construction and services required by or reasonably inferable from the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### **§ 1.1.4 The Project**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### **§ 1.1.5 The Drawings**

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. The Architect, other design professionals and/or vendors may from time to time issue additional Drawings and Specifications to provide coordination and details necessary to complete the Project. If the Additional Drawings and Specifications are (a) reasonably necessary to coordinate or provide conforming details for the architectural, structural, mechanical, electrical, plumbing, and other plans, specifications, and addenda included with the Drawings and Specifications, or (b) necessary to accurately reflect the scope, quality, quantity, function, or intent reflected in the Drawings and Specifications (all such matters described in (a) and (b) preceding are herein called "Completion Details"), the Additional Drawings and Specifications shall not give rise to any right on the part of the Contractor to an increase in the Contract Sum/Guaranteed Maximum Price. The Contractor acknowledges that the Contractor has reviewed and analyzed the Drawings and Specifications for constructability. In determining the Contract Sum/Guaranteed Maximum Price, the Contractor has taken into account that Completion Details will be required in the form of Additional Drawings and Specifications. A material modification of the Drawings and Specifications is not considered a Completion Detail.

#### **§ 1.1.6 The Specifications**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### **§ 1.1.7 Instruments of Service**

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective

professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### **§ 1.1.8 Initial Decision Maker**

The Initial Decision Maker if utilized is the person identified in the Agreement to make recommended decisions regarding Claims in accordance with Section 15.2

#### **§ 1.1.9 The Surety**

The Surety shall be defined as the corporate body which is bound with and for the Contractor and which engages to be responsible for his acceptable performance of the Work and for his payment of all debts pertaining to the Work, and which body is licensed to do business within the State in which this Project is located.

#### **§ 1.1.10 Approved**

The word "approved" shall be defined as the written approval by the Architect, except as otherwise modified. The terms "directed", "required", "permitted", or words of like import, shall be considered as similarly defined as to the party directing, requiring, permitting, or similarly instructing the contractor.

#### **§ 1.1.11 Provide Or Provided**

The words "provide" or "provided" shall be defined as both furnishing and installing a thing, product, system, assembly, material, or the like.

#### **§ 1.1.12 All**

"All" is implied throughout the Trade Sections of the Specifications and shall mean to do or accomplish all things under the Work, Contract, except where other provisions are specified. Hence, the use of the word "All" is limited, in general, to the general parts and the work included in the Scope of each and every Trade Section, or to residuary legate clauses requiring the doing of all things except those sequentially listed as excluded.

#### **§ 1.1.13 Product**

Wherever the word "product" appears within the Contract Documents, it shall be understood to mean material, equipment, assemble, manufacturers, brands, trade names, items of similar description as applicable.

#### **§ 1.1.14 Trade**

The word "Trade" (with initial capital letter) is used herein to designate a Section title and not a trade or craft as set up for labor jurisdiction in an area.

### **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include current, applicable code and regulatory requirements, as well as all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of a known conflict or inconsistency in or among the Contract Documents, or between the Contract Documents and applicable codes in effect at the time the Contract is executed, the Contractor shall, unless directed otherwise in writing by the Owner, provide the greatest quantity, highest quality, highest degree of safety, and most stringent material, equipment, or Work.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

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§ 1.2.4 Large-scale details shall, in general, govern and take precedence over small-scale details, which they are intended to amplify. Figure dimensions. Do not obtain dimensions by scaling. In cases of discrepancy between Drawings and Specifications, consult the Architect before proceeding with the work. Should the Architect fail to be notified prior to commencement of the work, the responsibility for the work shall be that of the Contractor. If during the bidding or pricing of the contract, a discrepancy is noted and the Architect has not been consulted, the higher cost solution is to be taken for cost considerations and the solution will be determined by the Architect when notified.

### § 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### § 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### § 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 Unless otherwise provided in the terms of the Owner-Architect Agreement, Owner shall be deemed the owner of the Drawings, Specifications and other Instruments of Service and shall have and retain all rights therein. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Drawings, Specifications and other Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Owner's reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Drawings, Specifications and other Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Drawings, Specifications and other Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Drawings, Specifications and other Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner.

### § 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 and notice of termination as set forth in Article 14 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### § 1.6.3 Transmission Of Data In Digital Form

The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of Instruments of Service in electronic form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic means involving computers.

§ 1.6.4 The Contractor shall not transfer or reuse Instruments of Service in electronic or machine readable form without the prior consent of the Architect. See Section 01 33 00 "Submittal Procedures" for conditions and requirements.

§ 1.6.5 Subcontractors, Sub-subcontractors, and Material or Equipment Suppliers must communicate through the Contractor for the use of Instruments of Service in Electronic Form.

## § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form, including Building Information Modeling.

*(Paragraphs deleted)*

## ARTICLE 2 OWNER

### § 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have authority to represent the Owner with respect to matters requiring Owner's representative. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

*(Paragraph deleted)*

### § 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's payment obligations under the Contract only if the Owner fails to make payments to the Contractor as the Contract Documents require. If the Owner fails to provide such evidence, as required, within fourteen (14) days of the Contractor's request, the Contractor may immediately stop the Work. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 The Contractor warrants and represents that the Contractor shall not knowingly or negligently communicate or disclose at any time to any person or entity any information in connection with the Work or the Project (including, without limitation, information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities), except (i) with prior written consent of the Owner, (ii) information that was in the public domain prior to the date of this Agreement, (iii) information that becomes part of the public domain by publication or otherwise not due to any unauthorized act or omission of the Contractor, or (iv) as may be required to perform the Work by any applicable law, including any set of Drawings, Specifications, and other documents which the Contractor is permitted to retain. Specific information shall not be deemed to fall within the scope of the foregoing exceptions merely because it is embraced by more generic information which falls within the scope of one or more of those exceptions. The Contractor shall not disclose to others that specific information was received from the Owner even though it falls within the scope of one or more of those exceptions. The Contractor acknowledges and agrees that the existence of the Owner's particular interests and plans in the geographical area of the Project is a type of such specific information. In the event that the Contractor is required by any court of competent jurisdiction or legally constituted authority to disclose any Owner Information, prior to any disclosure thereof, the Contractor shall notify the Owner and shall give the Owner the opportunity to challenge any such disclosure order or to seek protection for those portions that it regards as confidential.

*(Paragraph deleted)*

### § 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

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§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 Intentionally Omitted.  
Intentionally Omitted

§ 2.3.4 If requested by Contractor, the Owner shall furnish surveys describing physical characteristics, and legal limitations. Owner may also provide surveys showing utility location, if available. Such utility surveys shall not relieve or limit Contractor of its duty to properly locate all such utilities. The Contractor shall be entitled to reasonably rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and necessary for the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents. Additional sets will be furnished at the Architect's standard costs for reproduction plus postage and handling, if any.

#### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents or fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. In addition, the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including all costs and expenses, as well as compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### ARTICLE 3 CONTRACTOR

#### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be and shall remain lawfully licensed. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.1.4 The Contractor accepts the relationship of trust and confidence established between the Contractor and the Owner by the Contract Documents. The Contractor covenants with the Owner to furnish its best skill and judgment

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and to cooperate with the Architect in furthering the interest of the Owner, to furnish efficient business administration and superintendence, to furnish at all times an adequate supply of skilled workers and materials, and to perform the Work in the best way and in the most expeditious and economical manner consistent with the Contract Documents and the interests and expectations of the Owner. Contractor also represents that it is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform its obligations hereunder.

§ 3.1.5 Contractor shall record and promptly distribute detailed and accurate minutes of all regularly scheduled and other meetings.

### § 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Prior to and during the execution of the Work, the Contractor shall study and compare all Drawings, Specifications, and job conditions and shall promptly notify the Owner and the Architect in writing of any known errors, inconsistencies, discrepancies, conflicts and omissions ("Conflicts") arising out of the Contract Documents or observed or discovered prior to or during the performance of the Work. The Contractor shall request and have such Conflicts clarified or corrected by the Architect before proceeding with the Work. Work ordered, fabricated or constructed by the Contractor without notification of such Conflicts shall be corrected by the Contractor at his own expense. If the Contractor discovers any apparent Conflicts in the Contract Documents and proceeds with the performance of the Work, without timely notifying the Owner and the Architect and requesting additional drawings, clarifications or other instructions from the Architect as specified in this Paragraph, the Contractor shall assume full responsibility for such Work and the costs associated with such Work shall not be cause for an adjustment to the Guaranteed Maximum Price.

§ 3.2.2.1 The exactness of grades, elevations, dimensions, or locations given on the Drawings and Specifications, as well as with respect to Work installed by any other contractor, is not guaranteed by the Architect or the Owner. The Contractor shall, therefore, satisfy itself to the accuracy of all grades, elevations, dimensions, or locations. In all cases of interconnection of its Work with existing or other work, Contractor shall verify at the site all dimensions relating to such existing or other work. The Contractor shall promptly rectify any errors due to the Contractor's failure to verify such grades, elevations, dimensions, or locations without an adjustment to the Guaranteed Maximum Price .

§ 3.2.3 The Contractor shall take field measurements and verify field conditions, including existing structures relating to the Work, and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be promptly reported to the Owner and Architect. The Architect shall decide on questions that may arise regarding the meaning and intent of the Contract Documents. Should details or figures have been omitted, which are necessary to a clear understanding of the Work, or should an error appear in or discrepancies be found in the Contract Documents, it is the duty of the Contractor to notify the Architect of such known omissions, errors or discrepancies prior to proceeding with such Work. Before ordering material or doing work, the Contractor shall verify measurements at the Project site for the particular work. Likewise, the component parts of the Work shall be carefully checked and laid out in order that the structure as whole shall conform to the intent of the Contract Documents .

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect or Owner issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor properly performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 Any Mechanical, Electrical, Plumbing, and Fire Protection Drawings are diagrammatic only, and are not intended to show the alignment, physical locations or configurations of such Work. Such Work shall be installed without additional cost to the Owner to clear all obstructions, permit proper clearances for the work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the Contractor shall prepare coordination drawings showing exact alignment, physical location, and configuration of the Mechanical, Electrical, Plumbing, and Fire Protection installations and demonstrating to the Architect's satisfaction that the installations will comply with the requirements herein.

§ 3.2.6 Should the Specifications fail to particularly describe the material or kind of goods to be used in any place, it shall be the duty of the Contractor to make a written inquiry to the Architect and Owner for what is best suited. Material reasonably considered to be consistent with a project of this type shall be considered a part of the Agreement. To the extent that Contractor believes that the Architect's decision entitles Contractor to a change order, Contractor shall submit a change order request as provided in the Contract Documents.

### § 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 The Contractor shall layout all the Work as required by the Drawings and be held responsible for damage, if any is incurred, due to incorrect layout of Work. The Contractor shall establish all building lines, benchmarks, and levels from which all trades can work, and take necessary measures to keep the marks in visible evidence throughout all stages of the Work.

§ 3.3.5 In order to insure proper progress to Work, the Contractor shall be prepared to guarantee to each of his Subcontractors the dimensions which they may require for proper fitting of their work to all adjacent or adjoining work.

§ 3.3.6 The Contractor shall verify all measurements at buildings and premises, and where necessary measurements cannot be secured at the Project when required, the matter shall be referred to the Architect.

§ 3.3.7 Contractor is responsible for notification and protection of all known or reasonably discoverable utilities and existing structures in connection with the Work. If utility services are interrupted during the course of Contractor's Work, Contractor will take whatever actions are necessary and appropriate to ensure that utility services are restored in the shortest possible time and will hold Owner harmless and indemnify Owner from any claims related to damages or interruption to such utilities.

§ 3.3.8 Until final acceptance of the Work by Owner in accordance with the Contract Documents, the Contractor shall have exclusive responsibility for, and shall take every precaution reasonably necessary to prevent injury or damage to any part of the Work and shall rebuild, repair, restore, or make good, all injuries or damages to any portion of the Work prior to final acceptance by Owner.

§ 3.3.9 Contractor shall make the Work available to Owner for review, inspection or investigation at any time and shall provide Owner reasonable access to all parts of the Work upon request. Owner shall comply with Contractor's site safety procedures during such access period.

§ 3.3.10 The Contractor shall prepare and submit a written safety program to the Owner that is satisfactory in all respects to the Owner. Owner's review, approval or rejection of all or any portion of the Contractor's safety program shall neither impose any obligations or liabilities on Owner nor diminish in any way Contractor's responsibility for site safety. Contractor's safety program shall, at a minimum, comply with all of Owner's safety protocols, provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building code requirements to prevent accident or injury to persons in connection with the Work. Contractor shall clearly mark or post signs warning of hazards. Contractor shall also protect against damage or injury resulting from falling materials and Contractor shall maintain all protective devices and signs throughout the progress of the Work. Contractor may incorporate Contractor's safety manual as a portion of the written safety program.

§ 3.3.11 The Contractor shall prepare and submit a staging plan for the Work that is acceptable to Owner. Owner must approve the staging plan prior to commencement of the Work at the Site

§ 3.3.12 If a portion of the Work is covered contrary to the Owner's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, Owner, or any public authority having jurisdiction, be uncovered for examination and be replaced at the Contractor's expense without change in the Contract Time.

#### § 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with subparagraphs 3.12.8 or 7.4, after the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements of the Specifications (Division 01).

§ 3.4.2.1 By making requests for substitutions based on Subparagraph 3.4.2 above, the Contractor:

- .1 represents that the Contractor has investigated the proposed substitute product and reasonably believes it to be equal or superior in all respects to that specified and suitable for Architect's and Owner's review as a substitution;
- .2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
- .3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to this substitution which subsequently become apparent; and
- .4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.4 It is the intent of the Contract Documents to comply with N.C.G.S. § 133-3 and to encourage free and open competition on public contracts. However, nothing in this Subsection is intended to permit the Contractor to submit proposals for the use of products or materials which have not been approved by the Architect. All submittals for substitution approval shall be made in accordance with the Contract Documents, including this Subsection:

.1 Wherever the Specifications list only required performance and design characteristics for a product or material, the Contractor wishing to provide such a product or material shall submit such for approval.

.2 Where the Specifications list three or more names of products or materials, the listed examples are used only to denote the quality standard of product desired and do not restrict bidders to a specific brand, make, manufacturer or specific name. Rather, they are used only to set forth and convey to the Contractor the general style, type, character and quality of product desired. Products of similar general style, type, character appearance, and quality may be submitted for approval.

.3 Where the Specifications list fewer than three names of product or material, such products are the only products known to the Architect that comply with the required style, type, character appearance, and quality necessary for this product. If the Contractor wishes to propose equivalent products, it may do so.

**§ 3.4.5** In order to complete the Work satisfactorily and to preserve warranties and guarantees, all manufactured articles, materials and equipment required by the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the manufacturer's express directions and instructions unless otherwise specifically addressed in the Contract Documents.

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract including all site source materials or components will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements will be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect or Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4. In addition, The Contractor agrees to assign to the Owner, at the time of Substantial Completion of the Work, all manufacturer's warranties required by the Contract Documents relating to materials and labor used in the Work.

### **§ 3.6 Taxes**

**§ 3.6.1** The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. Pursuant to N.C.G.S. § 105-164.14, the Owner is eligible for sales and use tax refunds on all materials which become a permanent part of the construction. The Contractor agrees to provide the Owner such documentation as may be necessary to meet the requirements of the North Carolina Department of Revenue regarding requests for refund of sales and use taxes. Such requirements include those described in the North Carolina Department of Revenue Sales and Use Tax Technical Bulletins § 18-2(F), outlined below:

1. To substantiate a refund claim for sales or use taxes paid on purchases of building materials, supplies, fixtures, and equipment by the Contractor, the Owner must secure from the Contractor certified statements setting forth the specific required information. A "certified statement" is a statement signed by a contractor's owner, a corporate officer of a contractor, or an employee of a contractor who is authorized to provide information set forth in the statement. The certified statement must include all of the following information:

- a. the date the property was purchased;
- b. the type of property purchased;
- c. the cost of property purchased and the amount of sales and use taxes paid thereon;
- d. the vendor from whom the property was purchased;
- e. the project for which the property was used;
- f. if the property was purchased in the State of North Carolina, the county to which it was

delivered, or, if the property was not purchased in the State of North Carolina, the county in which the property was used; and  
g. the invoice number of the purchase

In the event the Contractor makes several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, and the State and local sales and use taxes paid thereon. Such statement must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of State and local sales or use tax paid thereon by the Contractor. Any local sales or use taxes included in the Contractor's statements must be shown separately from the State sales or use taxes. The Contractor's statements must not contain sales or use taxes paid on purchases of tangible personal property purchased by the Contractor for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure that is owned or leased by a governmental agency and is being erected, altered or repaired for use by a governmental entity as defined by N.C.G.S. § 105-164.14(c). Examples of property on which sales or use tax has been paid by the Contractor and which shall not be included in the Contractor's certified statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, equipment, equipment repair parts and equipment rentals. Similar certified statements by the Contractor's subcontractors must be obtained by the Contractor and furnished to the Owner.

The Contractor shall submit notarized sales tax certificates which meet the requirements detailed above with each Application for Payment. Payment will not be made until the sales tax certificate(s) have been submitted to the Owner. Owner is the recipient of sales tax refunds and no such funds shall be provided to Contractor, or claim made by Contractor therefor.

§ 3.6.2 If, after the date of this Agreement, the Contractor is required to pay or bear the cost of (i) any new federal, state or local tax, duty or tariff; (ii) any rate increase in an existing tax (except a tax on net profits); or (iii) changes in state, federal, local laws or regulations arising after the execution of this Contract, Contractor shall be entitled to request and receive an increase of the Contract Sum as provided in the Contract Documents.

### § 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or the Contract is executed.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. Contractor shall give all notices, apply for, obtain and pay for all necessary permits and licenses, including without limitation, temporary and permanent permits, grading permits, building permits, curb-breaking permits, water permits, highway entrance permits, and all similar permits, and comply with all applicable Federal, State and local laws, ordinances, codes, rules and regulations in connection with the Work. If any public authority having jurisdiction requires special bonding for any part of the construction of the Work, Contractor shall secure and pay the premiums for such bonds. The Contractor shall, as soon as practicable, furnish the Owner with copies or certificates of all such permits, fees, licenses, and inspections. All connection charges, assessments, or inspection fees as may be imposed by any municipal agency or utility company are included in the Contract Sum and shall be the Contractor's responsibility.

§ 3.7.3 If the Contractor performs or permits Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction without an increase in the Contract Sum or Contract Time.

### § 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines

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that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### § 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 Superintendent and Personnel

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The superintendent shall be in attendance at the Project site throughout the Work, including completion of the punchlist. The superintendent shall be approved by the Owner in its sole discretion. The superintendent shall be qualified in the type of Work to be undertaken and shall not be changed during the course of construction without the prior consent of Owner. Should a representative leave Contractor's employ, Contractor shall promptly designate a new representative. Owner shall have the right, at any time, to direct a change in the Contractor's personnel if their performance is unsatisfactory. In the event of such demand, Contractor shall, within seven (7) days after notification thereof, replace said individual(s) with an individual satisfactory to Owner, in Owner's sole discretion. Owner shall have no obligation to direct or monitor Contractor's employees.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect in writing of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Owner or Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent or Project Manager without the Owner's written consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 All personnel performing Work shall be qualified to perform the portion of the Work they are to perform. Owner shall have the right, but not the obligation, to reject any personnel assigned to the Project by Contractor.

Contractor, however, waives any claim or defense it may have as a result of Owner's exercising or failure to exercise such right.

### § 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall be a critical path schedule and shall be detailed to such a degree to promote proper and complete coordination of all trades. In addition, the schedule shall include (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; (3) the time required for completion of each portion of the Work, and (4) any design elements of Contractor's Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to and approved by the Owner and Architect.

§ 3.10.4 The Contractor shall be required to show the status of the Work according to the Construction Schedule with the submission of each pay application or every thirty (30) days, whichever occurs first. Contractor's Construction Schedule updates shall show the amount of Work constructed and compare the Work in place to the progress required by the Construction Schedule. Failure to provide such updates to the Construction Schedule shall be a material breach of this Contract. In addition, if, at any time, the progress of the Work is such that the Contractor will not be able to meet the Substantial Completion date in the Construction Schedule (taking into account extensions of the Contract Times approved in accordance with the Contract Documents), Contractor shall inform Owner of this potential delay as required by the Contract Documents and again when it provides its next schedule update. At that time, Contractor shall also present a recovery schedule and plan for such overtime work or other measures that may be required to recover the schedule. Failure to provide the Owner with notice in accordance with this Article of a potential delay to one or more of the completion dates and a plan of corrective action shall be deemed a waiver of the Contractor's right to claim any extension of time for delay caused by that activity.

§ 3.10.5 Should the Contractor fail to start any critical path milestone activity on the start date shown on the Construction Schedule, fail to achieve any critical path milestone, or otherwise fail to progress critical path milestones in accordance with the Construction Schedule (taking into account extensions of the Contract Time approved in accordance with the Contract Documents), it shall, without being entitled to any increase in the Contract Sum/Guaranteed Maximum Price or other compensation or extension in the Contract Time, work overtime, increase its force, or take other such action as may be necessary or appropriate to recover the Construction Schedule and complete the critical path milestone activity by the dates shown on the Construction Schedule.

3.10.6 The Owner shall have the right to direct a postponement or rescheduling of any date or time for the performance of any part of the Work that may interfere with the operation of or activities taking place on the Owner's premises. The Contractor shall, upon the Owner's request, reschedule any portion of the Work affecting operation of the premises. Any postponement, rescheduling, or performance of the Work under this Section shall be grounds for an extension of the Contract Time, to the extent it impacts the critical path of the Schedule.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

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delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

**§ 3.12 Shop Drawings, Product Data and Samples**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**§ 3.12.3** Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

**§ 3.12.4** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, stamp with his approval, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner, Architect or of Separate Contractors. If the Contractor submits Shop Drawings, Product Data, Samples, or similar submittals not in accordance with the submittal schedule approved by the Architect, then the cost to the Owner for the Architect's review of such Shop Drawings, Product Data, Samples, or similar submittals shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for the net increase in cost associated with such review. Additionally, if the Contractor submits a Shop Drawing, Product Data, a Sample, or a similar submittal more than the number of times specified in the of the Agreement between the Owner and the Architect, or in a manner such that it requires the Architect to review such a submittal more than the number of times specified in the of the Agreement between the Owner and the Architect then the cost to the Owner for the Architect's review of any such Shop Drawing, Product Data, Sample, or similar submittal shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs

**§ 3.12.6** By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them as being in conformance with the Contract Documents, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**§ 3.12.7** The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

**§ 3.12.8** The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

**§ 3.12.9** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

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§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify the performance and design criteria that such services must satisfy. The Contractor shall be entitled to reasonably rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional who shall comply with reasonable requirements of the Owner regarding qualifications and insurance, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect or Owner.

§ 3.12.11 The Contractor shall prepare and deliver to the Owner, in PDF format, an operating and maintenance manual for the Project, which shall contain, (i) full information for each item of mechanical, electrical, or other operating equipment, copies of warranties therefore, schematic diagrams of control systems, circuit directories for each electric and communications panelboard, and charts showing the tagging of all valves; and (ii) complete keying schedules, paint color schedules, and paint color samples. Each volume of the manual shall be clearly indexed, and shall include a directory of all Subcontractors and maintenance contractors, indicating the area of responsibility of each, and the name and telephone number of the responsible member of each organization.

### § 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas authorized by Owner and permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 Only materials and equipment that are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

§ 3.13.3 The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§ 3.13.4 Without limitation of any other provision of the Contract Documents, the Contractor shall use best efforts to minimize any interference with the occupancy or beneficial use of (i) any areas and buildings adjacent to the site of the Work and (ii) the building in the event of partial occupancy, as more specifically described in Section 9.9. Without prior approval of the Owner, the Contractor shall not permit any workers to use any

existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances, and parking areas other than those designated by the Owner.

- .1 Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the building, as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance of any portion of such rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives, or require compliance with the existing requirements of the rules and regulations.
- .2 The Contractor shall also comply with all insurance requirements applicable to use and occupancy of the Project site and the building.

### § 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### § 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located. Fire truck access to any existing facilities must be maintained at all times. Contractor shall minimize the off-loading time of delivery trucks. The Contractor shall provide a flagman with a radio to provide for immediate relocation of trucks in the event of an emergency.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished in writing to the Architect and Owner.

### § 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Owner's consultants, and agents and employees of any of them from and against any and all claims, damages, losses, and expenses, including reasonable attorneys' fees, arising out of or resulting from performance of the Work, , including, but not limited to claims, damages, losses, or expenses attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, but

only to the extent caused by the acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, unless such claim, damage, loss, or expense is caused solely by the acts of a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 The provisions of 3.18. shall survive any termination of this Agreement

#### ARTICLE 4 ARCHITECT

##### § 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner. .

##### § 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner as necessary for the Architect, to (1) become generally familiar with the progress and quality of the portion of the Work completed, and (2) determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. If the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents causes the Architect to visit the site more times than specified in Agreement between the Owner and the Architect, or extends the duration of the Project during construction then any cost incurred by Owner for Architect's additional visits to the site above such limit during construction shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs.

##### § 4.2.4 Communications

Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Work and the data comprising Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise

such authority shall give rise to a duty or responsibility of the Architect or the Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may with Owner's approval order minor changes in the Work as provided in Section 7.4. The Architect may investigate and make determinations and recommendations regarding concealed and unknown conditions.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will initially interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Initial interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such initial interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 Intentionally Omitted.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. If the Contractor submits requests for information that are not prepared in accordance with the Contract Documents or where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation and the Architect reviews such requests for information, then the cost to the Owner for Architect's review of such requests for information shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number

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and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

## § 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable (but not more than thirty (30) days) after award of the Contract, shall notify the Owner and Architect in writing of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Owner or Architect may notify the Contractor in writing whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. No work shall be commenced until the names of the Subcontractors have been given in writing to the Architect. This list shall be furnished no later than 30 days after the date of commencement. If required, the Contractor shall furnish evidence satisfactory to the Architect showing that any or all proposed Subcontractors are competent to execute the various parts of the Work covered by their subcontract.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of properly and timely performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

## § 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound.

## § 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract, and
- .3 each subcontract shall specifically provide that in the event of termination, the Owner shall only be responsible to the Contractor or Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights of conditional assignment as provided in the Contract Documents.

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When the Owner accepts the assignment of a subcontract agreement, the Owner assumes (1) all of the Contractor's rights, and (2) the Contractor's obligations for payment for future performance, under the subcontract; provided, however, that the Owner does not assume any obligation under the subcontract for any amounts owned by the Contractor under the subcontract at the time of termination of the Contract by the Owner as provided in Section 5.4.1.1.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost, if any, resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity.

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

### **§ 6.2 Mutual Responsibility**

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect in writing of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect in writing of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect (if the Owner has given the Architect authority to approve minor changes in the Work.)

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by an alteration of or addition to the Work (whether or not there is, in fact, any unjust enrichment), shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

### § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument signed by the Owner, Contractor, and Architect. The Change Order shall state three parties agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 Every Change Order shall be preceded by a written Change Order proposal from the Contractor which shall describe the physical nature of the proposed change and the proposed amount of the adjustment, if any, in the Contract Sum and/or Contract Times. When the Owner requests a proposal for a Change Order, the Contractor shall submit a proposal within ten (10) days. The Owner will then, within ten (10) days of receiving the requested Change Order proposal, either approve, deny or approve with conditions the Change Order proposal submitted by the Contractor. If Contractor performs any change in the Work without following the requirements of this paragraph, then Contractor shall not be entitled to any additional compensation or time related to such change in the Work.

§ 7.2.3 Agreement on any Change Order shall constitute a final settlement of all Contractors' potential claims relating to the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the Contract Time.

### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted according to the provisions of the Contract Documents.

§ 7.3.2 A Construction Change Directive shall be used in the absence of agreement on the terms of a Change Order.



§ 7.3.3 If the Construction Change Directive provides for an increase in the Guaranteed Maximum Price, the adjustment shall be based on

*(Paragraphs deleted)*

the audited Cost of the Work plus Contractor's Fee. Under no circumstances shall Contractor be entitled to recover for overhead and profit other than the Contractor's Fee:

*(Paragraphs deleted)*

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§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner and Architect in writing of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time, if any, or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Owner in conjunction with the Architect, will make an interim determination for purposes of monthly payment for those costs and make payment for the amount that the Owner and Architect determines is justified. ,

§ 7.3.9 When the Owner and Contractor agree concerning the adjustments in the Contract Sum and Contract Time, such agreement shall be effective immediately and the parties will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

*(Paragraph deleted)*

#### § 7.4 Minor Changes in the Work

The Architect may with written approval from the Owner order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and Owner in writing and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior written notice to the Owner and Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date the Work is complete and is certified by the Architect both in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

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## § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and materials in order to achieve Substantial Completion within the Contract Time. If the progress or completion of the work is delayed by any fault, neglect, act or failure to act on the part of the Contractor or anyone acting for or on behalf of the Contractor, then the Contractor shall, in addition to all of the other obligations imposed by this Contract and by law upon the Contractor, and at no cost or expense to the Owner, work such overtime or require the appropriate Subcontractor to work such overtime as may be necessary to make up for all time lost and to avoid delay in the progress and completion of the work.

## § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and if the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension in the Contract Time under the Contract Documents. The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (i) is not caused by the Contractor, (ii) could not be limited or avoided by the Contractor and (iii) is of a duration not less than six(6) hours in one (1) day.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 Intentionally Omitted.

Intentionally Omitted

### § 9.2 Schedule of Values

The Contractor shall submit a schedule of values to the Owner and Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Owner and Architect. This schedule, once approved by the Owner and Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be noted specifically as changes, submitted to the Architect and Owner and supported by such data to substantiate its accuracy as the Architect and Owner may require. The updated schedule of values, unless objected to by the Architect or Owner, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. The schedule of values of the various portions of the Work shall be submitted on AIA form G703 and shall be filled out in full.

### § 9.3 Applications for Payment

§ 9.3.1 At least ten (10) days before the date established for each progress payment, the Contractor shall submit to the Architect (with a copy to Owner) an itemized Application for Payment prepared in accordance with the most recently approved schedule of values for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as

copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. The form of Application for Payment, duly notarized shall be a current authorized edition of AIA Document G702, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703 Continuation Sheet. The Contractor's itemized estimate sheet used in preparation of the Application for Payment shall at all times be open for review by the Architect.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to promptly pay a Subcontractor or supplier, unless such Work has been performed by the Contractor or by others whom the Contractor intends to promptly pay. Contractor shall also include an updated Schedule of Values and Construction Schedule with each Application for Payment

§ 9.3.1.3 Until final payment, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments. If the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in the absence of other good and sufficient reason, when the total project is shown to be 50 percent or more complete in the Application for Payment, the Architect with concurrence by the Owner may, without reduction of previous retainage certify any remaining progress payments for each Work category to be paid in full.

§ 9.3.1.4 The full Contract retainage may be reinstated if the manner of completion of the Work and its progress does not remain satisfactory to the Architect (or if the Surety (if any) withholds its consent), or for other good and sufficient reasons.

§ 9.3.1.5 Starting with the second Application for Payment, the Contractor shall verify that he has paid all Subcontractors and major material suppliers that amount drawn on the previous payment for their respective areas.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. In requesting payment for materials stored on or off the site, the Contractor shall submit with his Application for Payment the following: (i) An itemized list of stored material prepared in sufficient detail to identify the materials and their value; (ii) Evidence such as bills of sale or such other proof as may be requested by the Owner or Architect to substantiate that the materials listed have been paid for by the Contractor, and (iii) documentation satisfactory in form and substance to Owner that title to such materials shall be vested in Owner. For material stored off the site, the Contractor shall also submit with his Application for Payment the following: (i) Evidence that the materials are stored at the location previously agreed to in writing; (ii) Evidence that the storage location is bonded; (iii) Evidence that the materials are insured while in storage and while in transit to the site, such insurance to be satisfactory to Owner and in such amount not less than the total value of the materials; and (iv) Evidence that transportation to the site will be provided. No payment will be certified for material stored off the site until the storage location has been agreed upon by Owner in writing. Representatives of the Owner and Architect shall have the right to make inspections of the storage facilities at any time. At the storage facility, such materials shall be specifically marked for use on the Project and segregated from other materials.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

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§ 9.3.4 Prior to and as a condition precedent for any progress payment or final payment, Contractor shall be required to provide all documents, including but not limited to, waivers, lien waivers, Subcontractor lien waivers, releases, and bonds, which are necessary to clear title to the Project or to waive, cancel, discharge, and void all potential or actual claims or liens by Contractor, Subcontractors, or suppliers against the Project and/or the Owner. Owner's lien waiver forms shall be used by Contractor, copies of which will be provided to Contractor upon request.

#### § 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of a properly submitted Application for Payment from Contractor, either (1) issue to the Owner a Certificate for Payment recommending payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment recommending payment in an amount that the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### § 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment or Owner may withhold payment requested in a Pay Application in whole or in part, to the extent reasonably necessary to protect the Owner. If the Architect is unable to certify or the Owner does not approve payment in the amount of the Application, the Architect or Owner will notify the Contractor as provided in Section 9.4.1. The Owner or Architect may, because of subsequently discovered evidence, nullify the whole or a part of an Application or Certification for Payment previously approved, to such extent as may be necessary to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating potential filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 a material failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 If the Contractor disputes the Architect's or Owner's decision regarding a Payment under Section 9.5.1, the Contractor may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification or payment are removed, certification will be made for amounts previously withheld.

§ 9.5.4 The Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Contractor, and Contractor will reflect such payment on its next Application for Payment. Any decision of the Owner to issue a joint check shall not create any rights in favor of any person or entity except the right of the named payees to payment of the check, and shall not obligate the Owner to further issuance of joint checks. In no event shall any joint payment be construed to create any (1) contract between the Owner and a Subcontractor or supplier of any tier, (2) obligations from the Owner to such Contractor, Subcontractor, or supplier, or (3) rights in such person or entities against the Owner.

§ 9.5.5 Notwithstanding anything else contained in the Contract Documents, Owner shall have final authority in deciding what payment is owed and in making such payment. Owner shall be entitled to withhold or reduce payment for any of the reasons set forth in Section 9.5.1. The Owner, however, must inform the Contractor of its decision to withhold or deny payment within twenty-one (21) days of receiving the Application for Payment.

## § 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment to the extent required and within the time provided in the Contract Documents.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

## § 9.6.3 Intentionally Omitted.

Intentionally Omitted § 9.6.4 The Owner and Architect have the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner and Architect or both shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

*(Paragraph deleted)*

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for unintentional breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier.

§ 9.6.9 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. If the Contractor fails to promptly make any such payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner.

### § 9.7 Failure of Payment

If the Owner does not pay the Contractor amounts otherwise due and payable under the Contract Documents within seven (7) days after the date established in the Contract Documents, or the amount awarded by binding dispute resolution, then the Contractor may, upon seven (7) additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount, if any, of the Contractor's reasonable costs incurred for shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

### § 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner or Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect and/or Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. If the Contractor's failure to complete the Work or to complete or correct items identified on the list of such items causes the Architect to perform more inspections than the number specified in the Agreement between the Owner and the Architect, then the Contractor shall reimburse the Owner for all costs incurred including the cost of the Architect's services made necessary thereby.

§ 9.8.3.1 The Contractor(s) shall certify that all remaining Work will be completed within 30 consecutive calendar days following the Date of Substantial Completion, and the failure to do so shall automatically reinstate the provisions for damages due the Owner as contained elsewhere in the Agreement or as provided by law for such period of time as may be required by the Contractor to fully complete the Work whether the Owner has occupied the Work or not.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that that, consistent with the requirements for Substantial Completion set forth herein, be evidence of the date of Substantial Completion. . Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.4.1 The Contractor shall not be deemed to have achieved Substantial Completion under the Contract Documents unless (1) Contractor has completed all the Work in strict accordance with the Contract Documents, (2) Contractor has completed the Work to such an extent that any equipment to be installed by Owner is able to be properly and completely installed, and (3) all approvals from all required governmental authorities and a formal Certificate of Occupancy have been obtained.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.8.6 A Certificate of Substantial Completion may be withdrawn by the Architect or the Owner based on subsequently discovered information that would have otherwise permitted Owner or Architect to determine that the Work was not substantially complete if known at the time of the issuance of the Certificate of Substantial Completion.

### **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed phase or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner or Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

### **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties, manuals and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner. In the event that more inspections by the Architect described above than the number specified in the limit in Section 4.3.3.4 of the Agreement between the Owner and the Architect, if any such number is specified, are made necessary by the failure of the Contractor to complete the Work or to complete or correct items identified on the list of such items, the Contractor shall reimburse the Owner for all costs incurred including the cost of the Architect's services made necessary thereby.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect and Owner in electronic format (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) all maintenance and operating manuals, (6) assignment of all guaranties and warranties from Subcontractors, vendors, suppliers or manufacturers, (7) provision of all necessary certifications related to the Work, (8) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, (9) as-built drawings, and (10) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees. The forms for release shall be the current authorized editions AIA G706 and G706A.

§ 9.10.3 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

*(Paragraphs deleted)*

## ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

### § 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### § 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Project and improvements therein. Any damage to such property or improvements shall be promptly repaired by the Contractor.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.4.1 When use or storage of explosive or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner and Architect reasonable advance notice and secure Owner's written approval.

§ 10.2.4.2 Contractor shall comply with OSHA Hazardous Communication Standard as described in the most recent Code of Federal Regulations.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.



§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

**§ 10.2.8 Injury or Damage to Person or Property**

If Contractor or a Subcontractor suffers injury or damage to person or property because of an act or omission of Owner, or of others for whose acts as Owner is legally responsible, or if Contractor is made aware of any accident or personal injury at the site, Contractor shall provide written notice of such accident, injury or damage, whether or not insured, to Owner and the Architect within a reasonable time not exceeding forty eight (48) hours after discovery. The notice shall provide sufficient detail to enable the Owner to investigate the matter.

§ 10.2.9 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition. The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work that cause death, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Architect.

**§ 10.3 Hazardous Materials and Substances**

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect in writing of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner and, if so, the basis for the objection. If either the Contractor has a reasonable objection to a person or entity proposed by the Owner, and has complied with the requirements of the preceding sentence, the Owner shall propose another to whom the Contractor has no reasonable objection. If the presence of a hazardous material or substance is verified, then when the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up, if any. If the absence of a hazardous material or substance is verified, the Work shall resume without adjustment to the Contract Time or Contract Sum.

*(Paragraph deleted)*

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and/or handling of such materials or substances. Any entity bringing chemicals onto the site must provide the Owner with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken in working with these chemicals.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently uses or handles, or (2) where the

Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

**§ 10.3.6** If, without negligence or a breach of Contract on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

#### **§ 10.4 Emergencies**

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

### **ARTICLE 11 INSURANCE AND BONDS**

#### **§ 11.1 Contractor's Insurance and Bonds**

**§ 11.1.1** The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement including the Minimum Insurance Requirements set forth in Exhibit A or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

**11.1.1.1** Insurance will protect the Contractor from claims which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable including claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed; including private entities performing Work at the site and exempt from the coverage on account of number of employees or occupation, which entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project.

**11.1.1.2** Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis, including:

1. Premises Operations (including X, C and U coverage's, as applicable).
2. Independent Contractors' Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provisions for Contractor's obligation under Paragraph 3.18.
6. Owned, non-owned and hired motor vehicles.
7. Broad Form Property Damage, including Completed Operations.

**11.1.1.3** If the General Liability coverage's are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination date of the policy or applicable extended reporting period shall be no earlier than the termination date of coverage's required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

**11.1.1.4** The insurance required by Article 11 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater.

**11.1.1.5** The Contractor shall maintain, throughout the life of the Contract, insurance satisfactory to the Owner providing not less than the following minimum coverage:

Public Liability Insurance:

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- A. Comprehensive General Liability Insurance - This is the basic insurance which covers the Contractor for his negligent acts, errors, and omissions.
- B. Contractor's Protective Liability Insurance - This insurance protects a Contractor from Liability arising from the negligent acts of his subcontractors.
- C. Blanket Contractual Liability Insurance - This is an extension of the regular general liability policy to cover any written contract entered into by the insured contractor.
- D. Completed Operations Liability Insurance - This form of insurance extends the time limit of the general liability policy to cover claims that may arise after work has been completed and turned over to the Owner.
- E. General Commercial Liability (Claims Made); Automobile Liability (any auto, hired autos, non-owned autos); Excess Liability (umbrella form); Workers' Comp. And Employers' Liability;
- F. XCU coverage: The certificate of insurance shall state that the XCU exclusions have been eliminated.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. The Contractor agrees to provide performance and payment bonds in the full amount of the Guaranteed Maximum Price and comply with the bonding requirements of N.C.G.S. § 143-128.1 and Article 3 of Chapter 44A of the North Carolina General Statutes on forms to be provided by the Owner.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 In the event of an accident or occurrence resulting in personal injury or damage to property arising out of or related to the Work, Contractor shall supply Owner with a full copy of all reports and findings proposed by Contractor's insurers related to such accidents or occurrences.

§ 11.1.55 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

## § 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as required in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

*(Paragraphs deleted)*

## § 11.3 Waivers of Subrogation

§ 11.3.1 To the extent permitted by applicable law, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; and (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights

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as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

*(Paragraph deleted)*

#### **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss..

#### **§11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner or Contractor depending on who is required to carry such insurance in good faith and made payable to the appropriate party in good faith for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. In good faith, As Owner or Contractor shall pay the Architect and Contractor or owner as applicable their just shares of insurance proceeds received, and by appropriate agreements. The Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

*(Paragraph deleted)*

**§ 11.5.2.**Intentionally Omitted.

### **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

#### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the Owner or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Owner, Architect, or any public authority's examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Owner or Architect has not specifically requested to examine prior to its being covered, the Owner or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the cost of uncovering the Work shall be at the Owner's expense. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

#### **§ 12.2 Correction of Work**

##### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Architect or Owner or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

##### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written express acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. If any of the Work is found not to be in accordance with requirements of the Contract Documents during the one-year period for correction of Work, and if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives only the right to require correction by the Contractor. If the

Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 Absent agreement from Contractor, the one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

*(Paragraph deleted)*

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

### § 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 Governing Law

This Agreement shall be construed and enforced in accordance with the laws of the State of North Carolina. The parties to this Agreement confer exclusive jurisdiction of all disputes arising hereunder upon the General Courts of Justice of Henderson County, North Carolina.

### § 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2 or elsewhere in the Contract Documents, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to (1) an affiliated entity; or (2) a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### § 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public

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authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, and with the appropriate public authority, if applicable, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect and Owner timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear net additional costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect or Owner will instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect or Owner of when and where tests and inspections are to be made so that the Architect or Owner may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense. The Contractor also agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services related to remedial operations performed to correct deficiencies in the Work, shall be borne by the Contractor.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect or Owner.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.4.7 The Contractor agrees and will have each of its sub-consultants, Subcontractors or materialmen agree that no inspections, tests, acceptances or approvals by Owner shall relieve Contractor of any responsibility imposed by this Contract, nor shall such inspections, tests, acceptances or approvals act as a waiver of any kind whatsoever by Owner.

### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

### § 13.6 Equal Opportunity

The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of physical or mental handicap, race, religion, color, sex, national origin, or age. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their physical or mental handicap, race, religion, color, sex, national origin, or age. Such actions shall include, but shall not be limited to, the following; employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them or their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age.

### § 13.7 General Provisions

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§ 13.7.1 Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and Architect.

§ 13.7.2 All personal pronouns used in this Contract, whether used in the masculine, feminine, or neuter gender, shall include all other genders; and the singular shall include the plural and vice versa. Titles of articles, paragraphs, and subparagraphs are for convenience only and neither limit nor amplify the provisions of this Contract. The use herein of the word "including," when following any general statement, term, or matter, shall not be construed to limit such statement, term, or matter to the specific items or matters set forth immediately following such word or to similar items or matters, whether or not non-limiting language (such words as "without limitation," or "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term, or matter.

§ 13.7.3 Each party hereto agrees to do all acts and things and to make, execute and deliver such written instruments, as shall from time to time be reasonably required to carry out the terms and provisions of the Contract Documents.

§ 13.7.4 Any specific requirement in this Contract that the responsibilities or obligations of the Contractor also apply to a Subcontractor is added for emphasis and is also hereby deemed to include a Subcontractor of any tier. The omission of a reference to a Subcontractor in connection with any of the Contractor's responsibilities or obligations shall not be construed to diminish, abrogate, or limit any responsibilities or obligations of a Subcontractor of any tier under the Contract Documents or the applicable subcontract.

§ 13.7.5 Owner and Contractor acknowledge that each of them participated in the negotiation and drafting of the Agreement, these General Conditions, and any Special Conditions, and therefore agree that the language of such documents shall not be construed for or against either party.

#### § 13.8 NO ORAL WAIVER

The provisions of the Contract Documents shall not be changed, amended, waived, or otherwise modified in any respect except by a writing signed by the Owner. No person is authorized on behalf of the Owner to orally change, amend, waive, or otherwise modify the terms of the Contract Documents or any of the Contractor's duties or obligations under or arising out of the Contract Documents. Any change, waiver, approval, or consent granted to the Contractor shall be limited to the specific matters stated in the writing signed by the Owner, and shall not relieve the Contractor of any other of the duties and obligations under the Contract Documents. No "constructive" changes shall be allowed.

#### § 13.9 E-VERIFY

E-Verify is the federal program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program, used to verify the work authorization of newly hired employees pursuant to federal law. Contractor shall ensure that Contractor and any subcontractor performing work under this Agreement: (i) uses E-Verify if required to do so by North Carolina law; and (ii) otherwise complies with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes."

#### § 13.10 IRAN DIVESTMENT ACT

Pursuant to Article 6E of Chapter 147 of the North Carolina General Statutes, the Owner must require most entities with which it contracts, which would include the Contractor under this Contract, to certify that the entity is not identified on a list created by the State Treasurer pursuant to N.C.G.S. § 147-86.58 (the "Final Divestment List"). This requirement is related to ensuring that entities with which local governments contract are not involved in investment activities in Iran. The Contractor certifies that: (i) it is not listed on the Final Divestment List, and (ii) it will not utilize any subcontractor performing work under this Agreement which is listed on the Final Divestment List.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment *(Paragraphs deleted)* as required by the Contract Documents.;

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and may only recover from the Owner payment for Work properly executed, and for payment of costs directly related to Work thereafter performed by the Contractor in terminating the Contract, including reasonable demobilization and cancellation charges

§ 14.1.4 If all of the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.1.5 The Contractor shall not stop Work nor terminate the Contract due to refusal of the Owner to issue payment as a result of a breach of the Contract by Contractor or for any of the reasons listed in Article 9.5.1 of the General Conditions.

### § 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 disregards applicable laws, statutes, ordinances, rules and regulations, or lawful orders of a public authority;
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents, including meeting deadlines for Substantial Completion; or
- .5 falls more than fourteen (14) days behind the progress required by the Construction Schedule (taking into account extensions of the Contract Time) or completion date and then fails promptly to take all necessary steps to regain the period of delay.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and



- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor an accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

#### § 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.3.3 When all or a portion of the Work is suspended for any reason, Contractor shall securely fasten down, cover, and/or otherwise take all steps reasonably necessary to protect the Work from damage.

#### § 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work executed in accordance with the Contract Documents, and costs reasonably incurred by reason of the termination, including reasonable demobilization costs. Regardless of whether termination is with or without cause, Owner shall not be liable to Contractor for consequential damages, incidental damages, special damages, or lost profits for such termination.

§ 14.4.4 Upon a determination by a court of competent jurisdiction that termination of the Contract pursuant to Section 14.2 was wrongful or otherwise improper, such termination shall be deemed a termination for convenience pursuant to Section 14.4 and the provisions of Section 14.4.3 shall apply.

### ARTICLE 15 CLAIMS AND DISPUTES

#### § 15.1 Claims

##### § 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

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*(Paragraphs deleted)*

**§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. Claims by either party under this Section 15.1.3.1 shall be expressly stated to be a claim under this Article 15 and initiated within 1010 days after occurrence of the event giving rise to such Claim or within 10 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party.

**§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make undisputed payments in accordance with the Contract Documents. Review of the Contractor's claim by the Owner shall not be deemed acceptance of such Claim, nor shall it constitute waiver of the Owner's right to deny the Claim on any basis including, but not limited to, on the basis that Claim was not timely made or that the Contractor waived its right to make such a Claim. Further, the Owner's review of a Claim shall not prevent the Owner from, nor shall it be deemed a waiver of the Owner's right to, assert in any litigation between the parties that the Claim was not timely made or that the Contractor waived its right to make such a Claim, regardless of whether such defect in timeliness or such waiver is raised at the time the Claim is submitted or during any review of Owner.

**§ 15.1.4.2 Intentionally Omitted.**

Intentionally Omitted

*(Paragraphs deleted)*

**§ 15.1.5 Claims for Additional Time Cost**

In the event that Contractor believes that it has been delayed in the prosecution of the Work for reasons over which it has no reasonable control, Contractor shall give written notice to the Owner and Architect within ten (10) days after the commencement of the event giving rise to the Claim. Such written notice shall include, at a minimum: the date on which notice of the Claim is provided to Owner; the date of the event giving rise to the Claim; to the extent then known by Contractor, full details and substantiating data to permit evaluation by the Owner and the Architect, including the reason for the delay and the estimated amount of such delay; and a specific explanation of how and why the delay in question affected the critical path of the Work, including a diagram illustrating such effect. If further or other information subsequently becomes known to the Contractor, it shall be immediately furnished to the Owner and the Architect in writing. Unless Contractor complies with the requirements of this Article 15.1.5, it shall not be entitled to any Claim for delay, extension of the Contract Time, or additional compensation for its Claim

**§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** In the event that Contractor believes that it has been delayed in the prosecution of the Work for reasons over which it has no reasonable control, Contractor shall give written notice to the Owner and Architect within five (5) days after the commencement of the event giving rise to the Claim. Such written notice shall include, at a minimum: the date on which notice of the Claim is provided to Owner; the date of the event giving rise to the Claim; to the extent then known by Contractor, full details and substantiating data to permit evaluation by the Owner and the Architect, including the reason for the delay and the estimated amount of such delay; and a specific explanation of how and why the delay in question affected the critical path of the Work, including a diagram illustrating such effect. If further or other information subsequently becomes known to the Contractor, it shall be immediately furnished to the Owner and the Architect in writing. Unless Contractor complies with the requirements of this Article 15.1.6, it shall not be entitled to any Claim for delay, extension of the Contract Time, or additional compensation for its Claim

**§ 15.1.6.2** As a precondition to Contractor making a Claim for a delay arising out of abnormal weather conditions, Contractor shall submit (a) data from the National Oceanic and Atmospheric Administration (NOAA) showing the number of days where precipitation or other inclement weather occurred during the period for which the Claim is made, along with (b) daily weather logs which must be kept at the job site and which must indicate that adverse weather or site conditions. A work day is considered lost due to adverse weather when the Contractor establishes that

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the adverse weather conditions or the ongoing effects of adverse weather prevented the Work on critical path activities from being performed for five (5) hours or more of an otherwise available and scheduled work day (Abnormal Weather Day) Contractor acknowledges that it has taken weather conditions into account in agreeing to meet any Milestones, as well as Substantial Completion and Final Completion Dates under the Contract Documents. Contractor shall be entitled to an extension of time only to the extent (1) it can show that each Abnormal Weather Day specifically affected the critical path of the Work and (2) the number of Abnormal Weather days exceeds the number of weather days built into the schedule as shown on Exhibit F; and (3) Contractor complies with all of the other requirements for such a claim under the Contract Documents

**§ 15.1.6.3** A basis exists for an extension of the Contract Time if the Contractor is delayed in performing the Work, but only to the extent that delays are (1) unforeseeable, (2) unavoidable, (3) beyond the control and without fault or negligence, in whole or in part, of the Contractor and its Subcontractors, sub-subcontractors, and suppliers at every tier, and (4) to the extent that the delays directly impact the Contractor's ability to achieve completion of the Work in accordance with the time requirements established by the Contract Documents (taking into account extensions of the Contract Time approved in accordance with the Contract Documents). Assessment of the existence of the basis for a time extension shall be determined by an examination of whether the delay event affects the critical path of the Project, and by taking into account, for the benefit of the overall Project, all "float" included with the Construction Schedule. A basis exists for an extension of time only if (a) the aforesaid criteria are met, (b) the delays cannot be made up by reasonable efforts which otherwise do not increase the cost of the Work, and (c) said delays stem from the following causes:

- .1 Owner Impact:** an act or failure to act on the part of the Owner or its agents constituting a breach of Owner's obligations under the Contract Documents or an injunction against Owner or Owner's representatives;
- .2 Non-Owner Impact:** All causes of delay other than an act or failure to act on the part of the Owner or its agents, including but not limited to, adverse weather, acts of God, riots, civil commotions, acts of war, unavoidable casualties to Work in progress, epidemics, quarantine restrictions, organized labor disputes, freight embargoes, unanticipated and undiscoverable environmental issues, abnormal material shortages, or solvencies of Subcontractors, sub-subcontractors or suppliers, or the solvency of the design consultants retained by the Contractor.

**§ 15.1.6.4** If the basis exists for an extension of time under Section 15.1.6.3 above, and the Contractor has timely submitted a written Claim documenting the basis for such extension in accordance with the Contract Documents, Owner may either:

- .1** Accept a reasonable and appropriate time extension to cover the actual delay to the critical path of the Work, and, in the case of an Owner Impact, grant a corresponding adjustment in the Contract Sum in accordance with the Contract Documents;
- .2** Accept a reasonable and appropriate time extension to cover the actual delay to the critical path of the Work, and in the case of a Non-Owner Impact, there will be no corresponding adjustment in the Contract Sum, and the sole recourse of Contractor will be an entitlement to a time extension regardless of actual source or cause of delay;
- .3** Submit a written Change Order to the Contractor to accelerate construction activity by working overtime and by adding extra forces in order to overcome such delays, after a submission to Owner of a good faith estimate of the costs of such acceleration and adjusting the Contract Sum in accordance with the Contract Documents to compensate Contractor for such directed acceleration; however, direct costs used in determining such compensation shall be limited to properly substantiated and documented premium or overtime labor costs. The Contractor shall not be entitled to receive any compensation for such acceleration of construction activities, unless the acceleration is performed pursuant to a written Change Order from the Owner; or
- .4** Employ a combination of the above remedies.

**§ 15.1.6.5** Neither Owner nor Owner's agents/consultants will be obligated or liable to Contractor for, and Contractor hereby expressly waives claims against Owner and Owner's consultants on account of, damages, costs, expenses, or related impacts which Contractor, or its Subcontractors, sub-subcontractors, suppliers, or other persons may incur as a

result of a Non-Owner Impact enumerated in Section 15.1.5.3.2; Contractor's sole and exclusive remedy and full compensation in such event shall be extension of Contract Time in accordance with the provisions of the Contract Documents..

#### § 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

#### § 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, may be referred to the Initial Decision Maker for a recommended decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. The Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) recommend a rejection of the Claim in whole or in part, (3) recommend approval of the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party who may assist the Initial Decision Maker in rendering a decision

§ 15.2.4 Intentionally Omitted

§ 15.2.5 Intentionally Omitted.

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*(Paragraph deleted)*

§ 15.2.6.1 Intentionally Omitted.

Intentionally Omitted

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

**§ 15.3 Mediation**

**§ 15.3.1** Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution. The Owner, as a North Carolina local government, shall use the dispute resolution process adopted by the State Building Commission pursuant to G.S. 143-135.26(11). This dispute resolution process will be available to all parties involved in this construction project including the Owner, the Architect, the Contractor, and the first-tier and lower-tier Subcontractors and shall be available for any issues arising out of the Contract or construction process, provided that the amount in controversy is \$15,000 or more. The Contractor shall make this process available to its Subcontractors by inclusion of this provision in the subcontractor agreements. The Owner and the Contractor agree that they shall submit any and all unsettled claims or counterclaims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof in which the amount in controversy is at least \$15,000 to mediation in accordance with said rules.

**§ 15.3.2** The parties shall endeavor to resolve their Claims by mediation. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

**§ 15.3.3** Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

**§ 15.3.4** The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

*(Paragraphs deleted)*

# Additions and Deletions Report for AIA® Document A201® – 2017

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The term "Work" means the construction and services required by or reasonably inferable from the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

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The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. The Architect, other design professionals and/or vendors may from time to time issue additional Drawings and Specifications to provide coordination and details necessary to complete the Project. If the Additional Drawings and Specifications are (a) reasonably necessary to coordinate or provide conforming details for the architectural, structural, mechanical, electrical, plumbing, and other plans, specifications, and addenda included with the Drawings and Specifications, or (b) necessary to accurately reflect the scope, quality, quantity, function, or intent reflected in the Drawings and Specifications (all such matters described in (a) and (b) preceding are herein called "Completion Details"), the Additional Drawings and Specifications shall not give rise to any right on the part of the Contractor to an increase in the Contract Sum/Guaranteed Maximum Price. The Contractor acknowledges that the Contractor has reviewed and analyzed the Drawings and Specifications for constructability. In determining the Contract Sum/Guaranteed Maximum Price, the Contractor has taken into account that Completion Details will be required in the form of Additional Drawings and Specifications. A material modification of the Drawings and Specifications is not considered a Completion Detail.

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The Initial Decision Maker if utilized is the person identified in the Agreement to ~~render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.~~ make recommended decisions regarding Claims in accordance with Section 15.2

### § 1.1.9 The Surety

The Surety shall be defined as the corporate body which is bound with and for the Contractor and which engages to be responsible for his acceptable performance of the Work and for his payment of all debts pertaining to the Work, and which body is licensed to do business within the State in which this Project is located.

### § 1.1.10 Approved

The word "approved" shall be defined as the written approval by the Architect, except as otherwise modified. The terms "directed", "required", "permitted", or words of like import, shall be considered as similarly defined as to the party directing, requiring, permitting, or similarly instructing the contractor.

### § 1.1.11 Provide Or Provided

The words "provide" or "provided" shall be defined as both furnishing and installing a thing, product, system, assembly, material, or the like.

**§ 1.1.12 All**

"All" is implied throughout the Trade Sections of the Specifications and shall mean to do or accomplish all things under the Work, Contract, except where other provisions are specified. Hence, the use of the word "All" is limited, in general, to the general parts and the work included in the Scope of each and every Trade Section, or to residuary legate clauses requiring the doing of all things except those sequentially listed as excluded.

**§ 1.1.13 Product**

Wherever the word "product" appears within the Contract Documents, it shall be understood to mean material, equipment, assemble, manufacturers, brands, trade names, items of similar description as applicable.

**§ 1.1.14 Trade**

The word "Trade" (with initial capital letter) is used herein to designate a Section title and not a trade or craft as set up for labor jurisdiction in an area.

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**§ 1.2.1** The intent of the Contract Documents is to include current, applicable code and regulatory requirements, as well as all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of a known conflict or inconsistency in or among the Contract Documents, or between the Contract Documents and applicable codes in effect at the time the Contract is executed, the Contractor shall, unless directed otherwise in writing by the Owner, provide the greatest quantity, highest quality, highest degree of safety, and most stringent material, equipment, or Work.

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**§ 1.2.4** Large-scale details shall, in general, govern and take precedence over small-scale details, which they are intended to amplify. Figure dimensions. Do not obtain dimensions by scaling. In cases of discrepancy between Drawings and Specifications, consult the Architect before proceeding with the work. Should the Architect fail to be notified prior to commencement of the work, the responsibility for the work shall be that of the Contractor. If during the bidding or pricing of the contract, a discrepancy is noted and the Architect has not been consulted, the higher cost solution is to be taken for cost considerations and the solution will be determined by the Architect when notified.

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**§ 1.5.1** ~~The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. Unless otherwise provided in the terms of the Owner-Architect Agreement, Owner shall be deemed the owner of the Drawings, Specifications and other Instruments of Service and shall have and retain all rights therein. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Drawings, Specifications and other Instruments of Service .~~ Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the ~~Architect's or Architect's consultants' Owner's~~ reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Drawings, Specifications and other Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the ~~Instruments of Service. Drawings, Specifications and other Instruments of Service .~~ The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Drawings, Specifications and other Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the ~~Owner, Architect, and the Architect's consultants. Owner.~~

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§ 1.6.2 Notice of Claims as provided in Section 15.1.3 and notice of termination as set forth in Article 14 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

**§ 1.6.3 Transmission Of Data In Digital Form**

The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of Instruments of Service in electronic form. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic means involving computers.

§ 1.6.4 The Contractor shall not transfer or reuse Instruments of Service in electronic or machine readable form without the prior consent of the Architect. See Section 01 33 00 "Submittal Procedures" for conditions and requirements.

§ 1.6.5 Subcontractors, Sub-subcontractors, and Material or Equipment Suppliers must communicate through the Contractor for the use of Instruments of Service in Electronic Form.

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The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. ~~The parties will use AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data including Building Information Modeling.~~

**§ 1.8 Building Information Models Use and Reliance**

~~Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™ 2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™ 2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.~~

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§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind represent the Owner with respect to all matters requiring the Owner's approval or authorization matters requiring Owner's representative . Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

~~§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.~~

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§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's payment obligations under the Contract only if ~~(1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum require~~. If the Owner fails to provide such evidence, as required, within fourteen ~~(14)~~ days of the Contractor's request, the Contractor may immediately stop the ~~Work and, in that event, shall notify the Owner that the Work has stopped. However, if the~~



request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. Work. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

~~§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor. he Contractor warrants and represents that the Contractor shall not knowingly or negligently communicate or disclose at any time to any person or entity any information in connection with the Work or the Project (including, without limitation, information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities), except (i) with prior written consent of the Owner, (ii) information that was in the public domain prior to the date of this Agreement, (iii) information that becomes part of the public domain by publication or otherwise not due to any unauthorized act or omission of the Contractor, or (iv) as may be required to perform the Work by any applicable law, including any set of Drawings, Specifications, and other documents which the Contractor is permitted to retain. Specific information shall not be deemed to fall within the scope of the foregoing exceptions merely because it is embraced by more generic information which falls within the scope of one or more of those exceptions. The Contractor shall not disclose to others that specific information was received from the Owner even though it falls within the scope of one or more of those exceptions. The Contractor acknowledges and agrees that the existence of the Owner's particular interests and plans in the geographical area of the Project is a type of such specific information. In the event that the Contractor is required by any court of competent jurisdiction or legally constituted authority to disclose any Owner Information, prior to any disclosure thereof, the Contractor shall notify the Owner and shall give the Owner the opportunity to challenge any such disclosure order or to seek protection for those portions that it regards as confidential.~~

~~§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.~~

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~~§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.~~  
Intentionally Omitted.

Intentionally Omitted

~~§ 2.3.4 The If requested by Contractor, the Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. and legal limitations . Owner may also provide surveys showing utility location, if available. Such utility surveys shall not relieve or limit Contractor of its duty to properly locate all such utilities. The Contractor shall be entitled to reasonably rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.~~

~~§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to necessary for the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.~~

~~§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2. Documents.. Additional sets will be furnished at the Architect's standard costs for reproduction plus postage and handling, if any.~~

...

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

...

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. ~~Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect.~~ In addition, the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including ~~Owner's expenses and all costs and expenses, as well as~~ compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

...

**§ 3.1.1** The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be ~~lawfully licensed, if required in the jurisdiction where the Project is located, and shall remain lawfully licensed.~~ The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

...

**§ 3.1.4** The Contractor accepts the relationship of trust and confidence established between the Contractor and the Owner by the Contract Documents. The Contractor covenants with the Owner to furnish its best skill and judgment and to cooperate with the Architect in furthering the interest of the Owner, to furnish efficient business administration and superintendence, to furnish at all times an adequate supply of skilled workers and materials, and to perform the Work in the best way and in the most expeditious and economical manner consistent with the Contract Documents and the interests and expectations of the Owner. Contractor also represents that it is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform its obligations hereunder.

**§ 3.1.5** Contractor shall record and promptly distribute detailed and accurate minutes of all regularly scheduled and other meetings.

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~~**§ 3.2.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise~~

specifically provided in the Contract Documents. Prior to and during the execution of the Work, the Contractor shall study and compare all Drawings, Specifications, and job conditions and shall promptly notify the Owner and the Architect in writing of any known errors, inconsistencies, discrepancies, conflicts and omissions ("Conflicts") arising out of the Contract Documents or observed or discovered prior to or during the performance of the Work. The Contractor shall request and have such Conflicts clarified or corrected by the Architect before proceeding with the Work. Work ordered, fabricated or constructed by the Contractor without notification of such Conflicts shall be corrected by the Contractor at his own expense. If the Contractor discovers any apparent Conflicts in the Contract Documents and proceeds with the performance of the Work, without timely notifying the Owner and the Architect and requesting additional drawings, clarifications or other instructions from the Architect as specified in this Paragraph, the Contractor shall assume full responsibility for such Work and the costs associated with such Work shall not be cause for an adjustment to the Guaranteed Maximum Price.

§ 3.2.2.1 The exactness of grades, elevations, dimensions, or locations given on the Drawings and Specifications, as well as with respect to Work installed by any other contractor, is not guaranteed by the Architect or the Owner. The Contractor shall, therefore, satisfy itself to the accuracy of all grades, elevations, dimensions, or locations. In all cases of interconnection of its Work with existing or other work, Contractor shall verify at the site all dimensions relating to such existing or other work. The Contractor shall promptly rectify any errors due to the Contractor's failure to verify such grades, elevations, dimensions, or locations without an adjustment to the Guaranteed Maximum Price .

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require, shall take field measurements and verify field conditions, including existing structures relating to the Work, and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be promptly reported to the Owner and Architect. The Architect shall decide on questions that may arise regarding the meaning and intent of the Contract Documents. Should details or figures have been omitted, which are necessary to a clear understanding of the Work, or should an error appear in or discrepancies be found in the Contract Documents, it is the duty of the Contractor to notify the Architect of such known omissions, errors or discrepancies prior to proceeding with such Work. Before ordering material or doing work, the Contractor shall verify measurements at the Project site for the particular work. Likewise, the component parts of the Work shall be carefully checked and laid out in order that the structure as whole shall conform to the intent of the Contract Documents .

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect or Owner issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor properly performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 Any Mechanical, Electrical, Plumbing, and Fire Protection Drawings are diagrammatic only, and are not intended to show the alignment, physical locations or configurations of such Work. Such Work shall be installed without additional cost to the Owner to clear all obstructions, permit proper clearances for the work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the Contractor shall prepare coordination drawings showing exact alignment, physical location, and configuration of the Mechanical, Electrical, Plumbing, and Fire Protection installations and demonstrating to the Architect's satisfaction that the installations will comply with the requirements herein.

§ 3.2.6 Should the Specifications fail to particularly describe the material or kind of goods to be used in any place, it shall be the duty of the Contractor to make a written inquiry to the Architect and Owner for what is best suited. Material reasonably considered to be consistent with a project of this type shall be considered a part of the Agreement. To the extent that Contractor believes that the Architect's decision entitles Contractor to a change order, Contractor shall submit a change order request as provided in the Contract Documents.

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

...

§ 3.3.4 The Contractor shall layout all the Work as required by the Drawings and be held responsible for damage, if any is incurred, due to incorrect layout of Work. The Contractor shall establish all building lines, benchmarks, and levels from which all trades can work, and take necessary measures to keep the marks in visible evidence throughout all stages of the Work.

§ 3.3.5 In order to insure proper progress to Work, the Contractor shall be prepared to guarantee to each of his Subcontractors the dimensions which they may require for proper fitting of their work to all adjacent or adjoining work.

§ 3.3.6 The Contractor shall verify all measurements at buildings and premises, and where necessary measurements cannot be secured at the Project when required, the matter shall be referred to the Architect.

§ 3.3.7 Contractor is responsible for notification and protection of all known or reasonably discoverable utilities and existing structures in connection with the Work. If utility services are interrupted during the course of Contractor's Work, Contractor will take whatever actions are necessary and appropriate to ensure that utility services are restored in the shortest possible time and will hold Owner harmless and indemnify Owner from any claims related to damages or interruption to such utilities.

§ 3.3.8 Until final acceptance of the Work by Owner in accordance with the Contract Documents, the Contractor shall have exclusive responsibility for, and shall take every precaution reasonably necessary to prevent injury or damage to any part of the Work and shall rebuild, repair, restore, or make good, all injuries or damages to any portion of the Work prior to final acceptance by Owner.

§ 3.3.9 Contractor shall make the Work available to Owner for review, inspection or investigation at any time and shall provide Owner reasonable access to all parts of the Work upon request. Owner shall comply with Contractor's site safety procedures during such access period.

§ 3.3.10 The Contractor shall prepare and submit a written safety program to the Owner that is satisfactory in all respects to the Owner. Owner's review, approval or rejection of all or any portion of the Contractor's safety program shall neither impose any obligations or liabilities on Owner nor diminish in any way Contractor's responsibility for site safety. Contractor's safety program shall, at a minimum, comply with all of Owner's safety protocols, provide all necessary safety measures for the protection of all persons on the job, including the requirements of the A.G.C. *Accident Prevention Manual in Construction*, as amended, and shall fully comply with all state laws or regulations and North Carolina State Building code requirements to prevent accident or injury to persons in connection with the Work. Contractor shall clearly mark or post signs warning of hazards. Contractor shall also protect against damage or injury resulting from falling materials and Contractor shall maintain all protective devices and signs throughout the progress of the Work. Contractor may incorporate Contractor's safety manual as a portion of the written safety program.

§ 3.3.11 The Contractor shall prepare and submit a staging plan for the Work that is acceptable to Owner. Owner must approve the staging plan prior to commencement of the Work at the Site

§ 3.3.12 If a portion of the Work is covered contrary to the Owner's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, Owner, or any public authority having jurisdiction, be uncovered for examination and be replaced at the Contractor's expense without change in the Contract Time.

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§ 3.4.2 Except in the case of minor changes in the Work approved-authorized by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive, subparagraphs 3.12.8 or 7.4, after the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements of the Specifications (Division 01).

§ 3.4.2.1 By making requests for substitutions based on Subparagraph 3.4.2 above, the Contractor:

- .1 represents that the Contractor has investigated the proposed substitute product and reasonably believes it to be equal or superior in all respects to that specified and suitable for Architect's and Owner's review as a substitution;
- .2 represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
- .3 certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to this substitution which subsequently become apparent; and
- .4 will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

...

§ 3.4.4 It is the intent of the Contract Documents to comply with N.C.G.S. § 133-3 and to encourage free and open competition on public contracts. However, nothing in this Subsection is intended to permit the Contractor to submit proposals for the use of products or materials which have not been approved by the Architect. All submittals for substitution approval shall be made in accordance with the Contract Documents, including this Subsection:

- .1 Wherever the Specifications list only required performance and design characteristics for a product or material, the Contractor wishing to provide such a product or material shall submit such for approval.
- .2 Where the Specifications list three or more names of products or materials, the listed examples are used only to denote the quality standard of product desired and do not restrict bidders to a specific brand, make, manufacturer or specific name. Rather, they are used only to set forth and convey to the Contractor the general style, type, character and quality of product desired. Products of similar general style, type, character appearance, and quality may be submitted for approval.
- .3 Where the Specifications list fewer than three names of product or material, such products are the only products known to the Architect that comply with the required style, type, character appearance, and quality necessary for this product. If the Contractor wishes to propose equivalent products, it may do so.

§ 3.4.5 In order to complete the Work satisfactorily and to preserve warranties and guarantees, all manufactured articles, materials and equipment required by the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the manufacturer's express directions and instructions unless otherwise specifically addressed in the Contract Documents.

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract including all site source materials or components will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the

Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements ~~may~~will be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the ~~Architect, Architect or Owner,~~ the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4. In addition, The Contractor agrees to assign to the Owner, at the time of Substantial Completion of the Work, all manufacturer's warranties required by the Contract Documents relating to materials and labor used in the Work.  
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~~The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.~~  
§ 3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. Pursuant to N.C.G.S. § 105-164.14, the Owner is eligible for sales and use tax refunds on all materials which become a permanent part of the construction. The Contractor agrees to provide the Owner such documentation as may be necessary to meet the requirements of the North Carolina Department of Revenue regarding requests for refund of sales and use taxes. Such requirements include those described in the North Carolina Department of Revenue Sales and Use Tax Technical Bulletins § 18-2(F), outlined below:

1. To substantiate a refund claim for sales or use taxes paid on purchases of building materials, supplies, fixtures, and equipment by the Contractor, the Owner must secure from the Contractor certified statements setting forth the specific required information. A "certified statement" is a statement signed by a contractor's owner, a corporate officer of a contractor, or an employee of a contractor who is authorized to provide information set forth in the statement. The certified statement must include all of the following information:
  - a. the date the property was purchased;
  - b. the type of property purchased;
  - c. the cost of property purchased and the amount of sales and use taxes paid thereon;
  - d. the vendor from whom the property was purchased;
  - e. the project for which the property was used;
  - f. if the property was purchased in the State of North Carolina, the county to which it was delivered, or, if the property was not purchased in the State of North Carolina, the county in which the property was used; and
  - g. the invoice number of the purchase

In the event the Contractor makes several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices, and the State and local sales and use taxes paid thereon. Such statement must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of State and local sales or use tax paid thereon by the Contractor. Any local sales or use taxes included in the Contractor's statements must be shown separately from the State sales or use taxes. The Contractor's statements must not contain sales or use taxes paid on purchases of tangible personal property purchased by the Contractor for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure that is owned or leased by a governmental agency and is being erected, altered or repaired for use by a governmental entity as defined by N.C.G.S. § 105-164.14(c). Examples of property on which sales or use tax has been paid by the Contractor and which shall not be included in the Contractor's certified statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, equipment, equipment repair parts and equipment rentals. Similar certified statements by the Contractor's subcontractors must be obtained by the Contractor and furnished to the Owner.

The Contractor shall submit notarized sales tax certificates which meet the requirements detailed above with each Application for Payment. Payment will not be made until the sales tax certificate(s) have been submitted to the Owner. Owner is the recipient of sales tax refunds and no such funds shall be provided to Contractor, or claim made

by Contractor therefor.

§ 3.6.2 If, after the date of this Agreement, the Contractor is required to pay or bear the cost of (i) any new federal, state or local tax, duty or tariff; (ii) any rate increase in an existing tax (except a tax on net profits); or (iii) changes in state, federal, local laws or regulations arising after the execution of this Contract, Contractor shall be entitled to request and receive an increase of the Contract Sum as provided in the Contract Documents.

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§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded the Contract is executed.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. Contractor shall give all notices, apply for, obtain and pay for all necessary permits and licenses, including without limitation, temporary and permanent permits, grading permits, building permits, curb-breaking permits, water permits, highway entrance permits, and all similar permits, and comply with all applicable Federal, State and local laws, ordinances, codes, rules and regulations in connection with the Work. If any public authority having jurisdiction requires special bonding for any part of the construction of the Work, Contractor shall secure and pay the premiums for such bonds. The Contractor shall, as soon as practicable, furnish the Owner with copies or certificates of all such permits, fees, licenses, and inspections. All connection charges, assessments, or inspection fees as may be imposed by any municipal agency or utility company are included in the Contract Sum and shall be the Contractor's responsibility.

§ 3.7.3 If the Contractor performs or permits Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to ~~correction~~ correction without an increase in the Contract Sum or Contract Time.

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### **§ 3.9 Superintendent and Personnel**

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The superintendent shall be in attendance at the Project site throughout the Work, including completion of the punchlist. The superintendent shall be approved by the Owner in its sole discretion. The superintendent shall be qualified in the type of Work to be undertaken and shall not be changed during the course of construction without the prior consent of Owner. Should a representative leave Contractor's employ, Contractor shall promptly designate a new representative. Owner shall have the right, at any time, to direct a change in the Contractor's personnel if their performance is unsatisfactory. In the event of such demand, Contractor shall, within seven (7) days after notification thereof, replace said individual(s) with an individual satisfactory to Owner, in Owner's sole discretion. Owner shall have no obligation to direct or monitor Contractor's employees.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect in writing of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Owner or Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent or Project Manager without the Owner's written consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 All personnel performing Work shall be qualified to perform the portion of the Work they are to perform. Owner shall have the right, but not the obligation, to reject any personnel assigned to the Project by Contractor. Contractor, however, waives any claim or defense it may have as a result of Owner's exercising or failure to exercise such right.

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**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall ~~contain detail appropriate for the Project, including be~~ a critical path schedule and shall be detailed to such a degree to promote proper and complete coordination of all trades. In addition, the schedule shall include (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work, and (4) any design elements of Contractor's Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

...

**§ 3.10.3** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to and approved by the Owner and Architect.

**§ 3.10.4** The Contractor shall be required to show the status of the Work according to the Construction Schedule with the submission of each pay application or every thirty (30) days, whichever occurs first. Contractor's Construction Schedule updates shall show the amount of Work constructed and compare the Work in place to the progress required by the Construction Schedule. Failure to provide such updates to the Construction Schedule shall be a material breach of this Contract. In addition, if, at any time, the progress of the Work is such that the Contractor will not be able to meet the Substantial Completion date in the Construction Schedule (taking into account extensions of the Contract Times approved in accordance with the Contract Documents), Contractor shall inform Owner of this potential delay as required by the Contract Documents and again when it provides its next schedule update. At that time, Contractor shall also present a recovery schedule and plan for such overtime work or other measures that may be required to recover the schedule. Failure to provide the Owner with notice in accordance with this Article of a potential delay to one or more of the completion dates and a plan of corrective action shall be deemed a waiver of the Contractor's right to claim any extension of time for delay caused by that activity.

**§ 3.10.5.**Should the Contractor fail to start any critical path milestone activity on the start date shown on the Construction Schedule, fail to achieve any critical path milestone, or otherwise fail to progress critical path milestones in accordance with the Construction Schedule (taking into account extensions of the Contract Time approved in accordance with the Contract Documents), it shall, without being entitled to any increase in the Contract Sum/Guaranteed Maximum Price or other compensation or extension in the Contract Time, work overtime, increase its force, or take other such action as may be necessary or appropriate to recover the Construction Schedule and complete the critical path milestone activity by the dates shown on the Construction Schedule.

**3.10.6** The Owner shall have the right to direct a postponement or rescheduling of any date or time for the performance of any part of the Work that may interfere with the operation of or activities taking place on the Owner's premises. The Contractor shall, upon the Owner's request, reschedule any portion of the Work affecting operation of the premises. Any postponement, rescheduling, or performance of the Work under this Section shall be grounds for an extension of the Contract Time, to the extent it impacts the critical path of the Schedule.

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**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, ~~approve, stamp with his approval,~~ and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the ~~Owner or of Separate Contractors.~~ Owner, Architect or of Separate Contractors. If the Contractor submits Shop Drawings, Product Data, Samples, or similar submittals not in accordance with the submittal schedule approved by the Architect, then the cost to the Owner for the Architect's review of such Shop Drawings, Product Data, Samples, or similar submittals shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for the net increase in cost associated with such review. Additionally, if the Contractor submits a Shop Drawing, Product Data, a Sample, or a similar submittal more than the number of times specified in the of the Agreement between the Owner and the Architect, or in a manner such that it requires the Architect to review such a submittal more than the number of times specified in the of the Agreement between the Owner and the Architect then the cost to the Owner for the Architect's review of any such Shop Drawing, Product Data, Sample, or similar submittal shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs



§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved ~~them,~~ them as being in conformance with the Contract Documents, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

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§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not ~~be required to~~ provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all the performance and design criteria that such services must satisfy. The Contractor shall be entitled to reasonably rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design ~~professional,~~ professional who shall comply with reasonable requirements of the Owner regarding qualifications and insurance, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the ~~Architect.~~ Architect or Owner.

§ 3.12.11 The Contractor shall prepare and deliver to the Owner, in PDF format, an operating and maintenance manual for the Project, which shall contain, (i) full information for each item of mechanical, electrical, or other operating equipment, copies of warranties therefore, schematic diagrams of control systems, circuit directories for each electric and communications panelboard, and charts showing the tagging of all valves; and (ii) complete keying schedules, paint color schedules, and paint color samples. Each volume of the manual shall be clearly indexed, and shall include a directory of all Subcontractors and maintenance contractors, indicating the area of responsibility of each, and the name and telephone number of the responsible member of each organization.

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~~The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.~~ § 3.13.1 The Contractor shall confine operations at the site to areas authorized by Owner and permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 Only materials and equipment that are to be used directly in the Work shall be brought to and stored on the Project site by the Contractor. After equipment is no longer required for the Work, it shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to

the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

§ 3.13.3 The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§ 3.13.4 Without limitation of any other provision of the Contract Documents, the Contractor shall use best efforts to minimize any interference with the occupancy or beneficial use of (i) any areas and buildings adjacent to the site of the Work and (ii) the building in the event of partial occupancy, as more specifically described in Section 9.9. Without prior approval of the Owner, the Contractor shall not permit any workers to use any existing facilities at the Project site, including, without limitation, lavatories, toilets, entrances, and parking areas other than those designated by the Owner.

- .1 Without limitation of any other provision of the Contract Documents, the Contractor shall use its best efforts to comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the building, as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance of any portion of such rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the Owner's sole discretion, adopt such suggestions, develop new alternatives, or require compliance with the existing requirements of the rules and regulations.
- .2 The Contractor shall also comply with all insurance requirements applicable to use and occupancy of the Project site and the building.

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The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located. Fire truck access to any existing facilities must be maintained at all times. Contractor shall minimize the off-loading time of delivery trucks. The Contractor shall provide a flagman with a radio to provide for immediate relocation of trucks in the event of an emergency.

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The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished ~~to the Architect~~ in writing to the Architect and Owner.

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§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's Owner's consultants, and agents and employees of any of them from and against any and all claims, damages, losses, and expenses, including but not limited to reasonable attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is, including, but not limited to claims, damages, losses, or expenses attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not unless such claim, damage, loss, or expense is caused in part by solely by the acts of a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

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§ 3.18.3 The provisions of 3.18. shall survive any termination of this Agreement

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§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to ~~Section 2.3.2~~ and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the ~~Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.~~ Owner.

...

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents ~~and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment Documents.~~ The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the ~~Owner, to~~ Owner as necessary for the Architect, to (1) become generally familiar with the progress and quality of the portion of the Work completed, and to (2) determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. ~~The Architect will not be responsible for~~ If the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work. Documents causes the Architect to visit the site more times than specified in Agreement between the Owner and the Architect, or extends the duration of the Project during construction then any cost incurred by Owner for Architect's additional visits to the site above such limit during construction shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs.

...

~~The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.~~

§ 4.2.5 Based on the Architect's evaluations of the Work and the data comprising Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise

such authority shall give rise to a duty or responsibility of the Architect or the Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may with Owner's approval order minor changes in the Work as provided in Section 7.4. The Architect ~~will~~ may investigate and make determinations and recommendations regarding concealed and unknown ~~conditions as provided in Section 3.7.4 conditions.~~

...

§ 4.2.11 The Architect will initially interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 ~~Interpretations~~ Initial interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such initial interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 ~~The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.~~ Intentionally Omitted.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. If the Contractor submits requests for information that are not prepared in accordance with the Contract Documents or where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation and the Architect reviews such requests for information, then the cost to the Owner for Architect's review of such requests for information shall be the responsibility of the Contractor and the Contractor shall reimburse the Owner for all such costs.

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§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable (but not more than thirty (30) days) after award of the Contract, shall notify the Owner and Architect in writing of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Owner or Architect may notify the Contractor in writing whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Owner or Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection. No work shall be commenced until the names of the Subcontractors have been given in writing to the Architect. This list shall be furnished no later than 30 days after the date of commencement. If required, the Contractor shall furnish evidence satisfactory to the Architect showing that any or all proposed Subcontractors are competent to execute the various parts of the Work covered by their subcontract.

...

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of properly and timely performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

...

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors bound.

...

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to ~~Section 14.2~~ Section 14 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and ~~Contractor~~, Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to ~~the Contract~~ to the Contract, and
- .3 each subcontract shall specifically provide that in the event of termination, the Owner shall only be responsible to the Contractor or Subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights of conditional assignment as provided in the Contract Documents.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes ~~the Contractor's rights and obligations under the subcontract.~~ (1) all of the Contractor's rights, and (2) the Contractor's obligations for payment for future performance, under the subcontract; provided, however, that the Owner does not assume any obligation under the subcontract for any amounts owned by the Contractor under the subcontract at the time of termination of the Contract by the Owner as provided in Section 5.4.1.1.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in ~~cost~~ cost, if any, resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. ~~If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.~~

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§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with ~~Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.~~ Contractors.

...

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect in writing of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect in writing of apparent discrepancies or defects prior to proceeding with the

Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

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§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect ~~alone~~ (if the Owner has given the Architect authority to approve minor changes in the Work).

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by an alteration of or addition to the Work (whether or not there is, in fact, any unjust enrichment), shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

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§ 7.2.1 A Change Order is a written instrument ~~prepared by the Architect and signed by the Owner, Contractor, and Architect stating their~~ Architect. The Change Order shall state the parties agreement upon all of the following:

...

- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 Every Change Order shall be preceded by a written Change Order proposal from the Contractor which shall describe the physical nature of the proposed change and the proposed amount of the adjustment, if any, in the Contract Sum and/or Contract Times. When the Owner requests a proposal for a Change Order, the Contractor shall submit a proposal within ten (10) days. The Owner will then, within ten (10) days of receiving the requested Change Order proposal, either approve, deny or approve with conditions the Change Order proposal submitted by the Contractor. If Contractor performs any change in the Work without following the requirements of this paragraph, then Contractor shall not be entitled to any additional compensation or time related to such change in the Work.

§ 7.2.3 Agreement on any Change Order shall constitute a final settlement of all Contractors' potential claims relating to the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the Contract Time.

...

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted ~~accordingly~~ according to the provisions of the Contract Documents.

§ 7.3.2 A Construction Change Directive shall be used in the absence of ~~total~~ agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an ~~adjustment to the Contract Sum,~~ increase in the Guaranteed Maximum Price, the adjustment shall be based on ~~one of the following methods:~~

- ~~.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;~~
- ~~.2 Unit prices stated in the Contract Documents or subsequently agreed upon;~~

~~3~~ — Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or the audited Cost of the Work plus Contractor's Fee. Under no circumstances shall Contractor be entitled to recover for overhead and profit other than the Contractor's Fee;

~~4~~ — As provided in Section 7.3.4.

~~§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:~~

- ~~1~~ — Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- ~~2~~ — Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- ~~3~~ — Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- ~~4~~ — Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- ~~5~~ — Costs of supervision and field office personnel directly attributable to the change.

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§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner and Architect in writing of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time Time, if any, or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change. Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Owner in conjunction with the Architect, will make an interim determination for purposes of monthly payment for those costs and make payment for the amount that the Owner and Architect determines is justified.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15. When the Owner and Contractor agree concerning the adjustments in the Contract Sum and Contract Time, such agreement shall be effective immediately and the parties will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

~~§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such~~

~~agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.~~

The Architect may with written approval from the Owner order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and Owner in writing and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior written notice to the Owner and Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

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§ 8.1.3 The date of Substantial Completion is the date the Work is complete and is certified by the Architect both in accordance with Section 9.8.

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§ 8.2.2 The Contractor shall not ~~knowingly~~, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and ~~shall materials in order to~~ achieve Substantial Completion within the Contract Time. If the progress or completion of the work is delayed by any fault, neglect, act or failure to act on the part of the Contractor or anyone acting for or on behalf of the Contractor, then the Contractor shall, in addition to all of the other obligations imposed by this Contract and by law upon the Contractor, and at no cost or expense to the Owner, work such overtime or require the appropriate Subcontractor to work such overtime as may be necessary to make up for all time lost and to avoid delay in the progress and completion of the work.

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§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended ~~for such reasonable time as the Architect may determine to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and if the performance of the Work is not, was not, or would not have been delayed by any other cause for which the Contractor is not entitled to an extension in the Contract Time under the Contract Documents.~~ The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (i) is not caused by the Contractor, (ii) could not be limited or avoided by the Contractor and (iii) is of a duration not less than six(6) hours in one (1) day.

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§ 9.1.2 ~~If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.~~ Intentionally Omitted.  
Intentionally Omitted

...

~~Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the T Contractor shall submit a schedule of values to the Owner and Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the~~



data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Owner and Architect. This schedule, once approved by the Owner and Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be noted specifically as changes, submitted to the Architect and Owner and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, and Owner may require.. The updated schedule of values, unless objected to by the Architect or Owner, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. The schedule of values of the various portions of the Work shall be submitted on AIA form G703 and shall be filled out in full.

...

**§ 9.3.1** At least ten (10) days before the date established for each progress payment, the Contractor shall submit to the Architect ( with a copy to Owner) an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, most recently approved schedule of values for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. The form of Application for Payment, duly notarized shall be a current authorized edition of AIA Document G702, Application and Certificate for Payment, supported by a current authorized edition of AIA Document G703 Continuation Sheet. The Contractor's itemized estimate sheet used in preparation of the Application for Payment shall at all times be open for review by the Architect.

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**§ 9.3.1.2** Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to promptly pay a Subcontractor or supplier, unless such Work has been performed by the Contractor or by others whom the Contractor intends to promptly pay. Contractor shall also include an updated Schedule of Values and Construction Schedule with each Application for Payment

**§ 9.3.1.3** Until final payment, the Owner will pay 95 percent of the amount due the Contractor on account of progress payments. If the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in the absence of other good and sufficient reason, when the total project is shown to be 50 percent or more complete in the Application for Payment, the Architect with concurrence by the Owner may, without reduction of previous retainage certify any remaining progress payments for each Work category to be paid in full.

**§ 9.3.1.4** The full Contract retainage may be reinstated if the manner of completion of the Work and its progress does not remain satisfactory to the Architect (or if the Surety (if any) withholds its consent), or for other good and sufficient reasons.

**§ 9.3.1.5** Starting with the second Application for Payment, the Contractor shall verify that he has paid all Subcontractors and major material suppliers that amount drawn on the previous payment for their respective areas.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. In requesting payment for materials stored on or off the site, the Contractor shall submit with his Application for Payment the following: (i) An itemized list of stored material prepared in sufficient detail to identify the materials and their value; (ii) Evidence such as bills of sale or such other proof as may be requested by the Owner or Architect to substantiate that the materials listed have been paid for by the Contractor, and (iii) documentation satisfactory in form and substance to Owner that title to such materials shall be vested in Owner. For material stored off the site, the Contractor shall also submit with his Application for Payment the following: (i) Evidence that the materials are stored at the location previously agreed to in writing; (ii) Evidence that the storage location is bonded; (iii) Evidence that the materials are insured while in storage and while in transit to the site, such insurance to be satisfactory to Owner and in such amount not less than the total value of the

materials; and (iv) Evidence that transportation to the site will be provided. No payment will be certified for material stored off the site until the storage location has been agreed upon by Owner in writing. Representatives of the Owner and Architect shall have the right to make inspections of the storage facilities at any time. At the storage facility, such materials shall be specifically marked for use on the Project and segregated from other materials.

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§ 9.3.4 Prior to and as a condition precedent for any progress payment or final payment, Contractor shall be required to provide all documents, including but not limited to, waivers, lien waivers, Subcontractor lien waivers, releases, and bonds, which are necessary to clear title to the Project or to waive, cancel, discharge, and void all potential or actual claims or liens by Contractor, Subcontractors, or suppliers against the Project and/or the Owner. Owner's lien waiver forms shall be used by Contractor, copies of which will be provided to Contractor upon request.

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, ~~aa properly submitted Application for Payment from Contractor,~~ either (1) issue to the Owner a Certificate for Payment recommending payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment ~~for such amount as recommending payment in an amount that~~ the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

...

§ 9.5.1 The Architect may withhold a Certificate for Payment ~~or Owner may withhold payment requested in a Pay Application~~ in whole or in part, to the extent reasonably necessary to protect the Owner, ~~if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made.~~ Owner. If the Architect is unable to certify ~~or the Owner does not approve~~ payment in the amount of the Application, the Architect ~~will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may or~~ Owner will notify the Contractor as provided in Section 9.4.1. The Owner or Architect ~~may, because of subsequently discovered evidence, nullify the whole or a part of a Certificate an Application or Certification for Payment previously issued, approved,~~ to such extent as may be necessary ~~in the Architect's opinion~~ to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

...

.2 third party claims filed or reasonable evidence indicating ~~probable-potential~~ filing of such claims, unless security acceptable to the Owner is provided by the Contractor;

...

.7 ~~repeated-a material~~ failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 ~~When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party~~ If the Contractor disputes the Architect's or Owner's decision regarding a Payment under Section 9.5.1, the Contractor may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification or payment are removed, certification will be made for amounts previously withheld.

~~§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the~~ The T Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall Contractor, and Contractor will reflect such payment on its next Application for Payment. Any decision of the Owner to issue a joint check shall not create any rights in favor of any person or entity except the right of the named payees to payment of the check, and shall not obligate the Owner to further issuance of joint checks. In no event shall any joint payment be construed to create any (1) contract between the Owner and a Subcontractor or supplier of any tier, (2) obligations from the Owner to such Contractor, Subcontractor, or supplier, or (3) rights in such person or entities against the Owner.

§ 9.5.5 Notwithstanding anything else contained in the Contract Documents, Owner shall have final authority in deciding what payment is owed and in making such payment. Owner shall be entitled to withhold or reduce payment for any of the reasons set forth in Section 9.5.1. The Owner, however, must inform the Contractor of its decision to withhold or deny payment within twenty-one (21) days of receiving the Application for Payment.

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~~§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner toto the extent required and within the time provided in the Contract Documents, and shall so notify the Architect.~~ Documents.

...

~~§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.~~ Intentionally Omitted.

Intentionally Omitted ~~§ 9.6.4 The Owner and Architect have the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner and Architect or both shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.~~

~~§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.~~

...

~~§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments~~ Payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for unintentional breach of the requirements of this provision.

~~§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.~~

§ 9.6.9 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. If the Contractor fails to promptly make any such payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work, Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, deduct an amount equal to that which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner.

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~~If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor amounts otherwise due and payable under the Contract Documents within seven (7) days after the date established in the Contract Documents, the amount certified by the Architect or the amount awarded by binding dispute resolution, then the Contractor may, upon seven (7) additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount amount, if any, of the Contractor's reasonable costs of incurred for shutdown, delay and start-up, plus interest as provided for in the Contract Documents.~~

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§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner or Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect and/or Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. If the Contractor's failure to complete the Work or to complete or correct items identified on the list of such items causes the Architect to perform more inspections than the number specified in the Agreement between the Owner and the Architect, then the Contractor shall reimburse the Owner for all costs incurred including the cost of the Architect's services made necessary thereby.

§ 9.8.3.1 The Contractor(s) shall certify that all remaining Work will be completed within 30 consecutive calendar days following the Date of Substantial Completion, and the failure to do so shall automatically reinstate the provisions for damages due the Owner as contained elsewhere in the Agreement or as provided by law for such period of time as may be required by the Contractor to fully complete the Work whether the Owner has occupied the Work or not.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. that, consistent with the requirements for Substantial Completion set forth herein, be evidence of the date of Substantial Completion. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.4.1 The Contractor shall not be deemed to have achieved Substantial Completion under the Contract Documents unless (1) Contractor has completed all the Work in strict accordance with the Contract Documents, (2) Contractor has completed the Work to such an extent that any equipment to be installed by Owner is able to be properly and completely installed, and (3) all approvals from all required governmental authorities and a formal Certificate of Occupancy have been obtained.

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§ 9.8.6 A Certificate of Substantial Completion may be withdrawn by the Architect or the Owner based on subsequently discovered information that would have otherwise permitted Owner or Architect to determine that the Work was not substantially complete if known at the time of the issuance of the Certificate of Substantial Completion.

§ 9.9.1 The Owner may occupy or use any completed phase or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner or Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

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~~§ 9.9.3 Unless otherwise agreed upon, partial~~ Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

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§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties, manuals and guarantees required under or pursuant to the Contract Documents shall be assembled and delivered by the Contractor to the Architect as part of the final Application for Payment. The final Certificate for Payment will not be issued by the Architect until all warranties and guarantees have been received and accepted by the Owner. In the event that more inspections by the Architect described above than the number specified in the limit in Section 4.3.3.4 of the Agreement between the Owner and the Architect, if any such number is specified, are made necessary by the failure of the Contractor to complete the Work or to complete or correct items identified on the list of such items, the Contractor shall reimburse the Owner for all costs incurred including the cost of the Architect's services made necessary thereby.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect and Owner in electronic format (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) all maintenance and operating manuals, (6) assignment of all guaranties and warranties from Subcontractors, vendors, suppliers or manufacturers, (7) provision of all necessary certifications related to the Work, (8) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6)-(9) as-built drawings, and (10) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the

lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees. The forms for release shall be the current authorized editions AIA G706 and G706A.

~~§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims. Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.~~

~~§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from~~  
~~.1 — liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;~~  
~~.2 — failure of the Work to comply with the requirements of the Contract Documents;~~  
~~.3 — terms of special warranties required by the Contract Documents; or~~  
~~.4 — audits performed by the Owner, if permitted by the Contract Documents, after final payment.~~

~~§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.~~

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§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards. The Contractor shall also be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Project and improvements therein. Any damage to such property or improvements shall be promptly repaired by the Contractor.

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§ 10.2.4.1 When use or storage of explosive or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner and Architect reasonable advance notice and secure Owner's written approval.

§ 10.2.4.2 Contractor shall comply with OSHA Hazardous Communication Standard as described in the most recent Code of Federal Regulations.

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If either party—Contractor or a Subcontractor suffers injury or damage to person or property because of an act or omission of the other party, Owner, or of others for whose acts such party is legally responsible, notice of the as Owner is legally responsible, or if Contractor is made aware of any accident or personal injury at the site, Contractor shall provide written notice of such accident, injury or damage, whether or not insured, shall be given to the other party to Owner and the Architect within a reasonable time not exceeding 21 days forty eight (48) hours after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter. Owner to investigate the matter.

§ 10.2.9 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition. The Contractor shall promptly report in writing to the Owner and Architect all accidents arising out of or in connection with the Work that cause death, personal injury, or property damage, giving full details

and statements of any witnesses. In addition, if death, serious personal injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Architect.

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§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect in writing of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor ~~and the Architect~~ will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by ~~the Owner. If either the Contractor or Architect has an~~ the Owner and, if so, the basis for the objection. If either the Contractor has a reasonable objection to a person or entity proposed by the Owner, and has complied with the requirements of the preceding sentence, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When has no reasonable objection. If the presence of a hazardous material or substance is verified, then when the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and ~~start-up~~ start-up, if any. If the absence of a hazardous material or substance is verified, the Work shall resume without adjustment to the Contract Time or Contract Sum.

~~§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.~~

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use ~~and~~ and/or handling of such materials or substances. Any entity bringing chemicals onto the site must provide the Owner with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken in working with these chemicals.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently uses or handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence or a breach of Contract on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

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§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement including the Minimum Insurance Requirements set forth in Exhibit A or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

11.1.1.1 Insurance will protect the Contractor from claims which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable including claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed; including private entities performing Work at the site and exempt from the coverage on account of number of employees or occupation, which entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project.

11.1.1.2 Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis, including:

1. Premises Operations (including X, C and U coverage's, as applicable).
2. Independent Contractors' Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provisions for Contractor's obligation under Paragraph 3.18.
6. Owned, non-owned and hired motor vehicles.
7. Broad Form Property Damage, including Completed Operations.

11.1.1.3 If the General Liability coverage's are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination date of the policy or applicable extended reporting period shall be no earlier than the termination date of coverage's required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

11.1.1.4 The insurance required by Article 11 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater.

11.1.1.5 The Contractor shall maintain, throughout the life of the Contract, insurance satisfactory to the Owner providing not less than the following minimum coverage:

Public Liability Insurance:

- A. Comprehensive General Liability Insurance - This is the basic insurance which covers the Contractor for his negligent acts, errors, and omissions.
- B. Contractor's Protective Liability Insurance - This insurance protects a Contractor from Liability arising from the negligent acts of his subcontractors.
- C. Blanket Contractual Liability Insurance - This is an extension of the regular general liability policy to cover any written contract entered into by the insured contractor.
- D. Completed Operations Liability Insurance - This form of insurance extends the time limit of the general liability policy to cover claims that may arise after work has been completed and turned over to the Owner.
- E. General Commercial Liability (Claims Made); Automobile Liability (any auto, hired autos, non-owned autos); Excess Liability (umbrella form); Workers' Comp. And Employers' Liability;



F. XCU coverage: The certificate of insurance shall state that the XCU exclusions have been eliminated.

**§ 11.1.2** The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. The Contractor agrees to provide performance and payment bonds in the full amount of the Guaranteed Maximum Price and comply with the bonding requirements of N.C.G.S. § 143-128.1 and Article 3 of Chapter 44A of the North Carolina General Statutes on forms to be provided by the Owner.

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**§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage. In the event of an accident or occurrence resulting in personal injury or damage to property arising out of or related to the Work, Contractor shall supply Owner with a full copy of all reports and findings proposed by Contractor's insurers related to such accidents or occurrences.

**§ 11.1.55 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

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**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as ~~described~~ required in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** ~~If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.~~

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** ~~Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance~~

~~had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.~~

~~§ 11.3.1~~ To the extent permitted by applicable law, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; and (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, ~~Separate Contractors,~~ subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

~~§ 11.3.2~~ If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. ~~The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.~~ loss.

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~~§ 11.5.1~~ A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary or Contractor depending on who is required to carry such insurance in good faith and made payable to the appropriate party in good faith for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. ~~The Owner~~ In good faith, As Owner or Contractor shall pay the Architect and Contractor or owner as applicable their just shares of insurance proceeds received by the Owner, and by appropriate agreements the received, and by appropriate agreements. The Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

~~§ 11.5.2~~ Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

§ 11.5.2. Intentionally Omitted.

...

§ 12.1.1 If a portion of the Work is covered contrary to the Owner or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the ~~Architect's-Owner, Architect, or any public authority's~~ examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Owner or Architect has not specifically requested to examine prior to its being covered, the Owner or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, ~~the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. the cost of uncovering the Work shall be at the Owner's expense.~~ If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

...

The Contractor shall promptly correct Work rejected by the Architect or Owner or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such ~~rejected~~ Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

...

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written express acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. ~~During-If any of the Work is found not to be in accordance with requirements of the Contract Documents during the one-year period for correction of Work, and if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty- only the right to require correction by the Contractor.~~ If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

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§ 12.2.2.3 ~~The Absent agreement from Contractor, the~~ one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 ~~The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.~~

...

~~The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4. This Agreement shall be construed and enforced in accordance with the laws of the State of North Carolina. The parties to this Agreement confer exclusive jurisdiction of all disputes arising hereunder upon the General Courts of Justice of Henderson County, North Carolina.~~

...

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in ~~Section 13.2.2, Section 13.2.2 or elsewhere in the Contract Documents,~~ neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to (1) an affiliated entity; or (2) a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

...

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, ~~or~~ and with the appropriate public authority, if applicable, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect and Owner timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear net additional costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect ~~will, upon written authorization from the Owner, or~~ Owner will instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect or Owner of when and where tests and inspections are to be made so that the Architect or Owner may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense. The Contractor also agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services related to remedial operations performed to correct deficiencies in the Work, shall be borne by the Contractor.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the ~~Architect~~ Architect or Owner.  
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§ 13.4.7 The Contractor agrees and will have each of its sub-consultants, Subcontractors or materialmen agree that no inspections, tests, acceptances or approvals by Owner shall relieve Contractor of any responsibility imposed by this Contract, nor shall such inspections, tests, acceptances or approvals act as a waiver of any kind whatsoever by Owner.

...

### § 13.6 Equal Opportunity

The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of physical or mental handicap, race, religion, color, sex, national origin, or age. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their physical or mental handicap, race, religion, color, sex, national origin, or age. Such actions shall include, but shall not be limited to, the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants

for employment, notices setting forth the policies of non-discrimination.

The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them or their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age.

### **§ 13.7 General Provisions**

§ 13.7.1 Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and Architect.

§ 13.7.2 All personal pronouns used in this Contract, whether used in the masculine, feminine, or neuter gender, shall include all other genders; and the singular shall include the plural and vice versa. Titles of articles, paragraphs, and subparagraphs are for convenience only and neither limit nor amplify the provisions of this Contract. The use herein of the word "including," when following any general statement, term, or matter, shall not be construed to limit such statement, term, or matter to the specific items or matters set forth immediately following such word or to similar items or matters, whether or not non-limiting language (such words as "without limitation," or "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term, or matter.

§ 13.7.3 Each party hereto agrees to do all acts and things and to make, execute and deliver such written instruments, as shall from time to time be reasonably required to carry out the terms and provisions of the Contract Documents.

§ 13.7.4 Any specific requirement in this Contract that the responsibilities or obligations of the Contractor also apply to a Subcontractor is added for emphasis and is also hereby deemed to include a Subcontractor of any tier. The omission of a reference to a Subcontractor in connection with any of the Contractor's responsibilities or obligations shall not be construed to diminish, abrogate, or limit any responsibilities or obligations of a Subcontractor of any tier under the Contract Documents or the applicable subcontract.

§ 13.7.5 Owner and Contractor acknowledge that each of them participated in the negotiation and drafting of the Agreement, these General Conditions, and any Special Conditions, and therefore agree that the language of such documents shall not be construed for or against either party.

### **§ 13.8 NO ORAL WAIVER**

The provisions of the Contract Documents shall not be changed, amended, waived, or otherwise modified in any respect except by a writing signed by the Owner. No person is authorized on behalf of the Owner to orally change, amend, waive, or otherwise modify the terms of the Contract Documents or any of the Contractor's duties or obligations under or arising out of the Contract Documents. Any change, waiver, approval, or consent granted to the Contractor shall be limited to the specific matters stated in the writing signed by the Owner, and shall not relieve the Contractor of any other of the duties and obligations under the Contract Documents. No "constructive" changes shall be allowed.

### **§ 13.9 E-VERIFY**

E-Verify is the federal program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program, used to verify the work authorization of newly hired employees pursuant to federal law. Contractor shall ensure that Contractor and any subcontractor performing work under this Agreement: (i) uses E-Verify if required to do so by North Carolina law; and (ii) otherwise complies with the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes."

### **§ 13.10 IRAN DIVESTMENT ACT**

Pursuant to Article 6E of Chapter 147 of the North Carolina General Statutes, the Owner must require most entities with which it contracts, which would include the Contractor under this Contract, to certify that the entity is not identified on a list created by the State Treasurer pursuant to N.C.G.S. § 147-86.58 (the "Final Divestment List"). This requirement is related to ensuring that entities with which local governments contract are not involved in investment

activities in Iran. The Contractor certifies that: (i) it is not listed on the Final Divestment List, and (ii) it will not utilize any subcontractor performing work under this Agreement which is listed on the Final Divestment List.

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§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of ~~30~~60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

...

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment ~~on a Certificate for Payment within the time stated in the Contract Documents; or~~

~~.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2. as required by the Contract Documents.;~~

...

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and may only recover from the Owner payment for Work ~~executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination. properly executed, and for payment of costs directly related to Work thereafter performed by the Contractor in terminating the Contract, including reasonable demobilization and cancellation charges~~

§ 14.1.4 If all of the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.1.5 The Contractor shall not stop Work nor terminate the Contract due to refusal of the Owner to issue payment as a result of a breach of the Contract by Contractor or for any of the reasons listed in Article 9.5.1 of the General Conditions.

...

.1 ~~repeatedly~~-refuses or fails to supply enough properly skilled workers or proper materials;

...

.3 ~~repeatedly~~-disregards applicable laws, statutes, ordinances, ~~codes~~, rules and regulations, or lawful orders of a public authority; ~~or~~

.4 otherwise is guilty of substantial breach of a provision ~~of the Contract Documents of the Contract Documents, including meeting deadlines for Substantial Completion; or~~

.5 falls more than fourteen (14) days behind the progress required by the Construction Schedule (taking into account extensions of the Contract Time) or completion date and then fails promptly to take all necessary steps to regain the period of delay.

§ 14.2.2 When any of the reasons described in Section 14.2.1 ~~exist, and upon certification by the Architect that sufficient cause exists to justify such action, the~~ exist the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor ~~a detailed an~~ accounting of the costs incurred by the Owner in finishing the Work.

...

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner ~~and not expressly waived~~, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. ~~The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this~~ This T obligation for payment shall survive termination of the Contract.

...

**§ 14.3.3** When all or a portion of the Work is suspended for any reason, Contractor shall securely fasten down, cover, and/or otherwise take all steps reasonably necessary to protect the Work from damage.

...

**§ 14.4.3** In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work ~~properly executed; costs executed in accordance with the Contract Documents, and costs reasonably incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.~~ reasonable demobilization costs. Regardless of whether termination is with or without cause, Owner shall not be liable to Contractor for consequential damages, incidental damages, special damages, or lost profits for such termination.

**§ 14.4.4** Upon a determination by a court of competent jurisdiction that termination of the Contract pursuant to Section 14.2 was wrongful or otherwise improper, such termination shall be deemed a termination for convenience pursuant to Section 14.4 and the provisions of Section 14.4.3 shall apply.

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#### **~~§ 15.1.2 Time Limits on Claims~~**

~~The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.~~

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party ~~and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker party.~~ Claims by either party under this Section 15.1.3.1 shall be ~~initiated within 21~~ expressly stated to be a claim under this Article 15 and initiated within 10 days after occurrence of the event giving rise to such Claim or ~~within 21~~ within 10 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. ~~In such event, no decision by the Initial Decision Maker is required.~~

...

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make undisputed payments in accordance with the Contract Documents. Review of the Contractor's claim by the Owner shall not be deemed acceptance of such Claim, nor shall it constitute waiver of the Owner's right to deny the Claim on any basis including, but not limited to, on the basis that Claim was not timely made or that the Contractor waived its right to make such a Claim. Further, the Owner's review of a Claim shall not prevent the Owner from, nor shall it be deemed a waiver of the Owner's right to, assert in any litigation between the parties that the Claim was not timely made or that the Contractor waived its right to make such a Claim, regardless of whether such defect in timeliness or such waiver is raised at the time the Claim is submitted or during any review of Owner.

~~§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.~~  
Intentionally Omitted

~~§ 15.1.5 Claims for Additional Cost~~

~~If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.~~

**§ 15.1.5 Claims for Additional Time Cost**

In the event that Contractor believes that it has been delayed in the prosecution of the Work for reasons over which it has no reasonable control, Contractor shall give written notice to the Owner and Architect within ten (10) days after the commencement of the event giving rise to the Claim. Such written notice shall include, at a minimum: the date on which notice of the Claim is provided to Owner; the date of the event giving rise to the Claim; to the extent then known by Contractor, full details and substantiating data to permit evaluation by the Owner and the Architect, including the reason for the delay and the estimated amount of such delay; and a specific explanation of how and why the delay in question affected the critical path of the Work, including a diagram illustrating such effect. If further or other information subsequently becomes known to the Contractor, it shall be immediately furnished to the Owner and the Architect in writing. Unless Contractor complies with the requirements of this Article 15.1.5, it shall not be entitled to any Claim for delay, extension of the Contract Time, or additional compensation for its Claim

~~§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. In the event that Contractor believes that it has been delayed in the prosecution of the Work for reasons over which it has no reasonable control, Contractor shall give written notice to the Owner and Architect within five (5) days after the commencement of the event giving rise to the Claim. Such written notice shall include, at a minimum: the date on which notice of the Claim is provided to Owner; the date of the event giving rise to the Claim; to the extent then known by Contractor, full details and substantiating data to permit evaluation by the Owner and the Architect, including the reason for the delay and the estimated amount of such delay; and a specific explanation of how and why the delay in question affected the critical path of the Work, including a diagram illustrating such effect. If further or other information subsequently becomes known to the Contractor, it shall be immediately furnished to the Owner and the Architect in writing. Unless Contractor complies with the requirements of this Article 15.1.6, it shall not be entitled to any Claim for delay, extension of the Contract Time, or additional compensation for its Claim~~

~~§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction. As a precondition to Contractor making a Claim for a delay arising out of abnormal weather conditions, Contractor shall submit (a) data from the National Oceanic and Atmospheric Administration (NOAA) showing the number of days where precipitation or other inclement weather occurred during the period for which the Claim is made, along with (b) daily weather logs which must be kept at the job site and which must indicate that adverse weather or site conditions. A work day is considered lost due to adverse weather when the Contractor establishes that the adverse weather conditions or the ongoing effects of adverse weather prevented the Work on critical path activities from being performed for five (5) hours or more of an otherwise available and scheduled work day (Abnormal Weather Day) Contractor acknowledges that it has taken weather conditions into account in agreeing to meet any Milestones, as well as Substantial Completion and Final Completion Dates under the Contract Documents. Contractor shall be entitled to an extension of time only to the extent (1) it can~~



show that each Abnormal Weather Day specifically affected the critical path of the Work and (2) the number of Abnormal Weather days exceeds the number of weather days built into the schedule as shown on Exhibit F ; and (3) Contractor complies with all of the other requirements for such a claim under the Contract Documents

§ 15.1.6.3 A basis exists for an extension of the Contract Time if the Contractor is delayed in performing the Work, but only to the extent that delays are (1) unforeseeable, (2) unavoidable, (3) beyond the control and without fault or negligence, in whole or in part, of the Contractor and its Subcontractors, sub-subcontractors, and suppliers at every tier, and (4) to the extent that the delays directly impact the Contractor's ability to achieve completion of the Work in accordance with the time requirements established by the Contract Documents (taking into account extensions of the Contract Time approved in accordance with the Contract Documents). Assessment of the existence of the basis for a time extension shall be determined by an examination of whether the delay event affects the critical path of the Project, and by taking into account, for the benefit of the overall Project, all "float" included with the Construction Schedule. A basis exists for an extension of time only if (a) the aforesaid criteria are met, (b) the delays cannot be made up by reasonable efforts which otherwise do not increase the cost of the Work, and (c) said delays stem from the following causes:

.1 Owner Impact: an act or failure to act on the part of the Owner or its agents constituting a breach of Owner's obligations under the Contract Documents or an injunction against Owner or Owner's representatives;

.2 Non-Owner Impact: All causes of delay other than an act or failure to act on the part of the Owner or its agents, including but not limited to, adverse weather, acts of God, riots, civil commotions, acts of war, unavoidable casualties to Work in progress, epidemics, quarantine restrictions, organized labor disputes, freight embargoes, unanticipated and undiscoverable environmental issues, abnormal material shortages, or solvencies of Subcontractors, sub-subcontractors or suppliers, or the solvency of the design consultants retained by the Contractor.

§ 15.1.6.4 If the basis exists for an extension of time under Section 15.1.6.3 above, and the Contractor has timely submitted a written Claim documenting the basis for such extension in accordance with the Contract Documents, Owner may either:

.1 Accept a reasonable and appropriate time extension to cover the actual delay to the critical path of the Work, and, in the case of an Owner Impact, grant a corresponding adjustment in the Contract Sum in accordance with the Contract Documents;

.2 Accept a reasonable and appropriate time extension to cover the actual delay to the critical path of the Work, and in the case of a Non-Owner Impact, there will be no corresponding adjustment in the Contract Sum, and the sole recourse of Contractor will be an entitlement to a time extension regardless of actual source or cause of delay;

.3 Submit a written Change Order to the Contractor to accelerate construction activity by working overtime and by adding extra forces in order to overcome such delays, after a submission to Owner of a good faith estimate of the costs of such acceleration and adjusting the Contract Sum in accordance with the Contract Documents to compensate Contractor for such directed acceleration; however, direct costs used in determining such compensation shall be limited to properly substantiated and documented premium or overtime labor costs. The Contractor shall not be entitled to receive any compensation for such acceleration of construction activities, unless the acceleration is performed pursuant to a written Change Order from the Owner; or

.4 Employ a combination of the above remedies.

§ 15.1.6.5 Neither Owner nor Owner's agents/consultants will be obligated or liable to Contractor for, and Contractor hereby expressly waives claims against Owner and Owner's consultants on account of, damages, costs, expenses, or related impacts which Contractor, or its Subcontractors, sub-subcontractors, suppliers, or other persons may incur as a result of a Non-Owner Impact enumerated in Section 15.1.5.3.2; Contractor's sole and exclusive remedy and full compensation in such event shall be extension of Contract Time in accordance with the provisions of the Contract Documents..

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§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall ~~may~~ be referred to the Initial Decision Maker ~~for initial fora recommended~~ decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this ~~Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. Section 15.2.1.~~ If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. ~~Unless the Initial Decision Maker and all affected parties agree, the~~ Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) ~~reject-recommend a rejection of~~ the Claim in whole or in part, (3) ~~approve-recommend approval of~~ the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party ~~or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.~~ decision

§ 15.2.4 ~~If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.~~ Intentionally Omitted

§ 15.2.5 ~~The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.~~ Intentionally Omitted.

Intentionally Omitted Intentionally Omitted § 15.2.6 Intentionally Omitted.

~~§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.~~

~~§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~ Intentionally Omitted.

Intentionally Omitted

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§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution. The Owner, as a North Carolina local government, shall use the dispute resolution process adopted by the State Building Commission pursuant to G.S. 143-135.26(11). This dispute resolution process will be available to all parties involved in this construction project including the Owner, the Architect, the Contractor, and the first-tier and lower-tier Subcontractors and shall be available for any issues arising out of the Contract or construction process, provided that the amount in controversy is \$15,000 or more. The Contractor shall make this process available to its Subcontractors by inclusion of this provision in the subcontractor agreements. The Owner and the Contractor agree

that they shall submit any and all unsettled claims or counterclaims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof in which the amount in controversy is at least \$15,000 to mediation in accordance with said rules.

~~§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. mediation. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.~~

...

#### ~~§ 15.4 Arbitration~~

~~§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.~~

~~§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.~~

~~§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.~~

~~§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.~~

#### ~~§ 15.4.4 Consolidation or Joinder~~

~~§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).~~

~~§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.~~

~~§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.~~

## **Certification of Document's Authenticity**

**AIA® Document D401™ – 2003**

I, \_\_\_\_\_, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 17:29:10 ET on 02/01/2023 under Order No. 2114310630 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2017, General Conditions of the Contract for Construction, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

\_\_\_\_\_  
*(Signed)*

\_\_\_\_\_  
*(Title)*

\_\_\_\_\_  
*(Dated)*



**PART 1 – FIRST FLOOR ALTERATIONS  
TO HENDERSONVILLE CITY HALL**





# Division 01 - General Requirements



## SECTION 01 10 00 – SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of alteration work.
  - 1. Project Location: 160 Sixth Ave. East, Hendersonville, NC 28792
  - 2. Owner: City of Hendersonville
- B. Architect Identification: The Contract Documents, date indicated on the Contract Documents, were prepared for Project by ADW Architects, P. A., 2815 Coliseum Centre Drive, Suite 500 Charlotte, North Carolina 28217. Phone:(704) 379-1919.
- C. The Work consists of alterations to the First Floor of the existing City Hall (7,555 sf) in Hendersonville, NC. Alterations will include but is not limited to: demolition of the interior space, slab cutting for new utilities, new walls, new ceilings, new hardware, new floor and wall finishes, new plumbing, new electrical, and alteration to HVAC systems.

This work also include minimal alterations to existing exterior walls to replace infill placed in a 2004 renovation with windows.

Interior finishes include gypsum wallboard on metal studs or furring channels, demountable wall partitions, and painted block walls. Acoustical and gypsum board ceilings. Floor finishes include porcelain tiles, carpet, and luxury vinyl tile.

Special coordination will be required with the owner's security vendor and the owner's IT & A/V vendor. Construction is expected to be completed in approximately 8 months. The owner will be occupying the building throughout construction however, the contractor will have access to the entire first floor during construction.

#### 1.3 CONTRACTS

- A. Project will be constructed under a general construction contract.

#### 1.4 WORK SEQUENCE

- A. The Work shall be conducted in the following sequences unless construction phases otherwise specified.
  - 1. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner.

2. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction will provide alternative usage.

#### 1.5 SITE INVESTIGATION

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the performance of the Work and all other matters which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

#### 1.6 USE OF PREMISES

- A. Owner Occupancy
  1. Owner will occupy the premises during the entire period of construction to conduct his normal operations. Cooperate with Owner in all construction operations to minimize conflict, and to facilitate Owner usage.
  2. Contractor shall at all times conduct his operations as to insure the least inconvenience and the greatest amount of safety and security for the Owner, his staff, and the general public.

#### 1.7 PROTECTION REQUIREMENTS FOR NEW AND EXISTING CONSTRUCTION

- A. Protect the existing building from wind, storms, cold heat, water and dust damage of any sort. Provide all equipment and enclosures to maintain this protection and keep the building interior free of water and dust during the life of the Contract.
- B. Provide all shoring and bracing required to maintain the integrity and the safety of the existing structure and for the proper execution of the Work.
- C. Exercise the utmost care to protect all existing utility lines from damage during the progress of the Work.
- D. Provide and erect before any work begins, and maintain during the progress of the Work, all necessary fences, warning signals, signs and lights. Extent of this work and details of construction shall be in accordance with the requirements of all state and local codes.
- E. Any portion of the existing building or existing utility services not included as part of this Contract or any portion of the Work damaged because of failure to provide the protection required shall be removed and replaced with new materials and construction at the Contractor's expense. This work shall be accomplished subject to the Architect's and Owners' approval.

#### 1.8 REPLACEMENT AND REPAIR OF ANY STRUCTURES THAT HAVE BEEN DESTROYED IN THE PROGRESS OF THE WORK:

- A. Because of the installation of the new items of equipment, fixtures, materials, etc., that are required by this Project, it shall become necessary to remove portions of the existing structure, equipment, and/or utility services. Unless specifically noted otherwise on the Drawings, the Contractor shall be responsible for replacing, in a condition of identical appearance, construction, design, working order, and strength as its previous state, any such portion of the existing structure, equipment, and/or utility services so required to be disturbed. The replaced item shall meet the approval of the Architect before final approval of the Project is given.

#### 1.9 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner will award a separate contract for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. This contract will include the following:
  - 1. Audio/Video Systems.
  - 2. Security Systems.
  - 3. Furniture Systems.
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

#### 1.10 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish appliances, office equipment and audio visual equipment. The Work includes providing support systems to receive Owner's equipment and plumbing, mechanical, and electrical connections.
  - 1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
  - 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
  - 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
  - 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
  - 5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
  - 6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
  - 7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Architect noting discrepancies or anticipated problems in use of product.
  - 8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
  - 9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
  - 10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

#### 1.11 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
  
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

## SECTION 01 14 00 - WORK RESTRICTIONS

### PART 1 - GENERAL

#### 1.1 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
  - 1. Limits: Confine constructions operations to areas of new work as defined on the drawings.
  - 2. Owner Occupancy: Allow for Owner occupancy of site and use by the public.
  - 3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

#### 1.2 OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.
- B. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
  - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
  - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
  - 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building.
  - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 14 00





## SECTION 01 21 00 - ALLOWANCES

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.
- B. Items covered by these allowances shall be supplied for such amounts and by such persons as the Architect may direct.
- C. Designate in Construction Schedule delivery dates for products under each allowance.
- D. Designate in Schedule of Values quantities of materials specified under unit cost allowances.

#### 1.02 SELECTION OF PRODUCTS:

- A. Architect's Duties:
  - 1. Consult with Contractor in consideration of products and suppliers. Make selection, designate products to be used. Notify Contractor, in writing, designating:
    - a. Product, model, and finish.
    - b. Accessories and attachments.
    - c. Supplier.
    - d. Cost, delivered and unloaded at site.
- B. Contractor's Duties:
  - 1. Assist Architect in determining qualified suppliers. Obtain proposals from suppliers when requested by Architect. Make appropriate recommendations for consideration of Architect. Notify Architect of any effect anticipated by selection of product or supplier under consideration on the Construction schedule or the Contract Sum.
  - 2. On notification of selection, enter into purchase agreement with designated supplier.

#### 1.03 DELIVERY:

- A. Contractor's Responsibility:
  - 1. Arrange for delivery and unloading.
  - 2. Promptly inspect products for damage or defects.
  - 3. Submit claims for transportation damage.

#### 1.04 INSTALLATION:

- A. Comply with requirements of referenced specification section.

#### 1.05 ADJUSTMENT OF COSTS:

- A. Each Allowance includes the cost, expense, and/or materials as set forth for each item.
- B. In the event the materials, as set forth in each allowance, do not cost, as much as allotted, a credit shall revert to the Owner.
- C. In the event the materials, as set forth in each allowance, are not used in their entirety, a

monetary credit shall revert to the Owner.

- D. In either of the above instances, the Contractor shall be required to substantiate quantity actually used of the allotted monies and/or materials.

## PART 2 - PRODUCTS

### 2.01 ALLOWANCE NO. 1 - CONTINGENCY ALLOWANCE:

- A. Make a cash allowance for a contingency that is to cover minor, unforeseen items of work arising during construction. It does not include error or omissions by Contractor. Work shall be charged against this allowance only under the direction of the Architect with approval by Owner.
- B. Determined Cash Allowance: 5% of construction cost

## PART 3 - EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 21 00

## SECTION 01 22 00 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. See Division 01 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.

#### 1.2 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 LIST OF UNIT PRICES

- A. **Unit Price No. #1: REMOVAL OF UNSUITABLE MATERIAL**
  - 1. Description: Material that contains organic matter, muck, humus, peat, sticks, debris, or other deleterious materials not normally suitable for use in earth work, including procedures for measurement and payment, according to Division 31.
  - 2. Unit of Measurement: Per cubic yard.

**B. Unit Price No. #2: IN-PLACE STRUCTURAL FILL**

1. Description: In-place Structural Fill, including procedures for measurement and payment, according to Division 31.
2. Unit of Measurement: Per cubic yard.

**C. Unit Price No. #5: IN-PLACE CONCRETE PAVING**

1. Description: In-place concrete paving, including procedures for measurement and payment, according to Division 32.
2. Unit of Measurement: Per square foot (4" thickness)

END OF SECTION 01 22 00

## SECTION 01 23 00 - ALTERNATES

### PART 1 - GENERAL

#### 1.01 DESCRIPTION:

- A. This section summarizes the alternate bids required to be submitted with each Bidder's bid. State in the alternate bids the net sum to be added to, or deducted from the Base Bid in the event the alternate bids are accepted.
- B. Submit alternate bids by filling in blank spaces provided thereof on the Bid Form furnished by the Architect.
- C. The Owner reserves the right to accept or reject any or all of the alternate bids.
- D. Where the description of the alternate bids lists Trade Sections affected by the alternate bid, such a listing shall not necessarily be considered all-inclusive. It shall be the responsibility of each Bidder to determine to his own satisfaction and for his own purposes the limits and extend of the Work affected by the alternate bids and to make full and proper allowance therefore in the submission of his alternate bid proposal.
- E. Include in the alternate bids all changes in cost, either additive or deductive, resulting in the work of all Trade Sections of the Specifications affected thereby. Work required by the alternate bids shall be performed in accordance with applicable Specifications of the Trade Section affected.
- F. Delayed acceptance of the alternate bids: The Owner reserves the right to delay the acceptance of the alternate bids for a period not to exceed 30 calendar days from the time of accepting the general contract without a change in the dollar amount of the alternate bids.

#### 1.02 WORK OF OTHER RELATED SECTIONS:

- A. Pertinent Sections of these Specifications describe the materials and methods required under the various alternates.
- B. The method for stating the proposed Contract Sum is described on the Bid Form.

#### 1.03 SUBMITTALS:

- A. All alternates described in this Section of these Specifications are required to be reflected in the bid submitted on the Bid Form for the Work; however, do not submit alternates other than those specifically allowed in the Documents.

#### 1.04 PRODUCT HANDLING:

- A. If the Owner elects to proceed on the basis of one or more of the alternates, make all modifications to the Work required in the furnishing and installation of the selected alternate or alternates to the approval of the Architect and at no additional cost to the Owner other than as proposed on the Bid Form.

PART 2 - PRODUCTS

2.01 ALTERNATE NO. 1 - *Bullet Resistant Customer Service Windows – See sheet A600.*

PART 3 - EXECUTION

3.01 ADVANCE COORDINATION:

- A. Immediately after award of Contract, and to the maximum extent possible, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner; use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection of alternatives.

3.02 SURFACE CONDITIONS:

- A. Prior to installation of the alternate items, verify that all surfaces have been modified as necessary to accept the installation and that the time or items may be installed in complete accordance with their manufacturer's current recommendations. In the event of discrepancy, immediately notify the Architect and proceed as he directs.

END OF SECTION 01 23 00

## SECTION 01 25 00 - PRODUCT SUBSTITUTIONS-PRIOR TO BID

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. The General Conditions of the Contract for Construction (AIA A201-2007) article 1.2 apply to this section

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions prior to the Owner's receipt of bids.
  - 1. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime Contractor.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Division 01 Section "Submittal Procedures".
- C. Standards: Refer to Division 01 Section "References" for applicability of industry standards to products specified.
- D. Procedural requirements governing the Contractor's selection of products and product options are included under Division 01 Section "Product Requirements".

#### 1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:
  - 1. Substitutions that are requested by Bidders beyond the 10 days prior to bid opening submittal period.
  - 2. Revisions to Contract Documents requested by the Owner or Architect.
  - 3. Specified options of products and construction methods included in Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution from prime bidders will be considered if received by the architect ten (10) days prior to the bid opening.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required below.
  2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification sections and drawing number.
  3. Provide complete documentation on both the product specified and the proposed substitution including the following information as appropriate.
    - a. Comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
    - b. Samples where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
  4. Certification by the Contractor or manufacturer that the substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and that it will perform equal or superior to product specified in the application indicated. The Contractor waives any right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.
  5. Architect's Action: The Architect may request additional information or documentation necessary for evaluation of the request. The Architect will notify the Contractors of acceptance of the proposed substitution by means of an addendum to the bid documents. If the proposed substitute is accepted through an addendum use the product specified by name.
- B. Architect/Engineer's Substitution Approval during bidding and subsequent addendums does not void the Contractor's responsibility to submit the required shop drawings and comply with the other contract documents and requirements.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when all of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.



- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

PART 3 - EXECUTION

- A. Submit in format as outlined on following page.

PRODUCT SUBSTITUTION

Project \_\_\_\_\_

Date: \_\_\_\_\_ Bid Opening Date: \_\_\_\_\_

Product and / or Fabrication Method: \_\_\_\_\_

Spec Section: \_\_\_\_\_

Related Drawings: \_\_\_\_\_

<u>Criteria or Specified Product</u>	<u>Included</u>
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

<u>Criteria or Specified Product</u>	<u>Included</u>
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

The substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and it will perform equal or superior to product specified in the application indicated. The Contractor waives right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

Signed: \_\_\_\_\_

END OF SECTION 01 25 00

## SECTION 01 25 13 - PRODUCT SUBSTITUTIONS-POST BID

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including the General and Supplementary Conditions and other Division 01 Specification Sections apply to this section.
- B. The General Conditions of the Contract for Construction (AIA201-2007) Article 1.2 apply to this section

#### 1.2 SUMMARY

- A. During bidding period, the Bidders shall comply with the substitution request procedures specified in the Section 01 25 00 of the Project Manual.
- B. This Section specifies administrative and procedural requirements for handling requests for substitutions proposed by the Contractor after the award of the Contract.
- C. The substitution process is available as a means to promote fair and open procurement by the Owner, and not to provide the Contractor the opportunity to substitute products of an inferior quality. To that end, the Owner reserves the right to reject a product not deemed an equal to the product specified; charge the Contractor for the Additional Services, if required, of the Architect; or require an equitable credit for the substituted product.
- D. Multiple Prime Contracts: Provisions of this section apply to the construction activities of each Prime Contractor.
- E. The Contractor's Construction Schedule and the Schedule of Submittals are included under Division 01 Section "Submittal Procedures".
- F. Standards: Refer to Division 01 Section "References" for applicability of industry standards to products specified.
- G. Procedural requirements governing the Contractor's selection of products and product options are included under Division 01 Section "Product Requirements".

#### 1.3 DEFINITIONS

- A. Definitions used in the Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:

1. Revisions to Contract Documents requested by the Owner or Architect.

2. Specified options of products and construction methods included in Contract Document.
3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Requests for Substitution will be considered during the bidding period. Refer to Section 01 25 00.
- B. Substitution Request Submittal: Requests for substitution will be considered if received within thirty (30) days after the Notice to Proceed, or Letter of Intent, which ever comes first. Requests received more than thirty (30) days after the commencement of the work may be considered or rejected at the discretion of the Architect. Substitution items submitted without requests will be rejected.
  1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with the procedures required for change order proposals.
  2. Clearly indicate on the transmittal that the product being submitted is a substitution. Do not include on the same transmittal, any product that is not a substitution.
  3. Provide a credit change order proposal if the substitution is intended to provide the Owner a product of a lesser value than the value of the specified product. If the substitution will not result in a savings to the owner, then clearly narrate the reason for the proposed change.
  4. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions and the following information as appropriate:
    - a. Product Data, including Drawings and descriptions of products, fabrications and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those for the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
    - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

- f. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents and that it will perform adequately in the application intended. Include the Contractor's waiver of rights to additional payment for time that may subsequently become necessary because of the failure of the substitution to perform adequately.
  - g. Cost information, including a proposal of the net change, if any in the contract sum.
5. Architect's Action: The Architect may request additional information or documentation necessary for evaluation of the request. The Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made, use the product specified by name.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when all of the following conditions are satisfied, as determined by the Architect; otherwise, requests will be returned without action except to record noncompliance with these requirements.
- 1. Extensive revisions to Contract Documents are not required.
  - 2. Proposed changes are in keeping with the general intent of Contract Documents.
  - 3. The request is timely, fully documented and properly submitted.
  - 4. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
  - 5. Where a proposed substitution involves more than one (1) prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency and to assure compatibility of products.
  - 6. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  - 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for re-design and evaluation services, increased cost of other construction by the Owner or separate Contractors and similar considerations.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 25 13

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.
- C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

#### 1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

#### 1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 20 days receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709

#### 1.4 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
  1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.



1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00



## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

#### 1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Change Orders (numbers) that affect value.
    - d. Dollar value.
      - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
  - 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
  - 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by

- measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
  9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

### 1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit a minimum of 3, or number agreed upon at pre-construction meeting, signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
  1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Submittals Schedule (preliminary if not final).
  5. List of Contractor's staff assignments.
  6. Copies of building permits.
  7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  8. Certificates of insurance and insurance policies.
  9. Performance and payment bonds.
  10. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00





SECTION 01 29 13 – STATE AND COUNTY TAX FORM



## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Coordination Drawings.
  - 3. Administrative and supervisory personnel.
  - 4. Project meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
  - 2. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

#### 1.3 COORDINATION

- A. Coordination: The Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. The Contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Contact Progress Reporting: The scheduling and sequence of all operations shall be carefully coordinated with the Owner and Architect.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

#### 1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
  2. Indicate required installation sequences.
  3. Refer to Divisions 21, 22 & 23 for specific Coordination Drawing requirements for fire suppression, plumbing and mechanical installations.
  4. Refer to Division 26 for specific Coordination Drawing requirements for electrical installations.

#### 1.5 PROJECT MEETINGS

- A. General Project Meetings: The Architect shall conduct Project coordination/progress meetings on a bi-monthly basis. Project coordination meetings are in addition to specific meetings held for other purposes, such as preinstallation conferences. Schedule and conduct meetings and conferences at Project site, unless otherwise indicated
1. The Contractor shall attend the monthly progress meetings for the purpose of informing the Owner and the Architect regarding the status of the project. Compile minutes of the meeting, and furnish a copy of the minutes to attendance.
  2. Attendees: Owner, Contractor, Job Superintendent, Material Suppliers, and Subcontractors, as appropriate. Each representative shall be thoroughly familiar with the status of the project and shall be prepared to discuss and act upon any situations which may arise. The time, date and location of these meetings will be established during pre-construction conference. The General Contractor shall provide an updated job progress schedule at each meeting and inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  3. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.

- 4) Deliveries.
- 5) Off-site fabrication.
- 6) Access.
- 7) Site utilization.
- 8) Temporary facilities and controls.
- 9) Work hours.
- 10) Hazards and risks.
- 11) Progress cleaning.
- 12) Quality and work standards.
- 13) Change Orders

- B. Preconstruction Conference: A preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments. The Architect will compile minutes of the meeting, and will furnish a copy of the minutes to the Contractor and Owner.
1. Attendees: Authorized representatives of Owner, Architect, Engineer's Representative, Contractor and their consultants; The Contractor and its job Superintendent (mandatory), job Foreman (mandatory), major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work. The Contractor shall also provide three (3) local telephone numbers which may be used to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
  2. Agenda: Discussion of Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, with the Architect and Owner, including channels and procedures for communication. Items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Critical work sequencing.
    - c. Designation of responsible personnel.
    - d. Procedures for processing field decisions and Change Orders.
    - e. Procedures for processing Applications for Payment.
    - f. Distribution of the Contract Documents.
    - g. Submittal procedures.
    - h. Preparation of Record Documents.
    - i. Use of the premises.
    - j. Responsibility for temporary facilities and controls.
    - k. Parking availability.
    - l. Office, work, and storage areas.
    - m. Equipment deliveries and priorities.
    - n. First aid.
    - o. Security.
    - p. Progress cleaning.
    - q. Working hours.
  3. At the pre-construction meeting, the General Contractor shall submit a schedule of values consisting of a detailed breakdown of the Contract amount showing separate figures for labor and material for each major work item (i.e., tear-off, insulation, membrane, surfacing, metal, asbestos abatement, etc.) The work listed under the various sections and subsections of the Specifications will serve as the format for preparation of the breakdown.
  4. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. If related to special inspections or material testing, the Special Inspector and Engineer must attend along with the Architect. **Approved** shop drawings must also be available at these conferences. Coordinate with the Architect the scheduling of these meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related Change Orders.
    - d. Purchases.
    - e. Deliveries.
    - f. Submittals.
    - g. Review of mockups, if any.
    - h. Possible conflicts.
    - i. Compatibility problems.
    - j. Time schedules.
    - k. Weather limitations.
    - l. Manufacturer's written recommendations.
    - m. Warranty requirements.
    - n. Compatibility of materials.
    - o. Acceptability of substrates.
    - p. Space and access limitations.
    - q. Regulations of authorities having jurisdiction.
    - r. Testing and inspecting requirements.
    - s. Protection of construction and personnel.
  3. Record significant conference discussions, agreements, and disagreements.
  4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.
  - 5. Division 01 Section "Closeout Procedures" for submitting photographic negatives as Project Record Documents at Project closeout.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and early finish times.
  - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- C. Major Area: A story of construction, a separate building, or a similar significant construction element.
- D. Milestone: A key or critical point in time for reference or measurement.

#### 1.4 SUBMITTALS

- A. Submittals Schedule: Submit three (3) copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
- B. Preliminary Construction Schedule: Submit two (2) printed copies; one a single sheet of reproducible media and one a print.
- C. Contractor's Construction Schedule: Submit two (2) printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
- D. Field Condition Reports: Submit one (1) copy at time of discovery of differing conditions.
- E. Special Reports: Submit one (1) copy at time of unusual event.

#### 1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication. Submit within two weeks from Notice to Proceed.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

#### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Architect.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  - 4. Startup and Testing Time: Include not less than ten (10) days for startup and testing.
  - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

### 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within thirty (30) days of date established for the Notice to Proceed. Base schedule on whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in twenty (20) percent increments within time bar.

### 2.4 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate Actual Completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect, Owner, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00



## SECTION 01 33 00 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. See Division 01 for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
- C. See Division 01 for submitting test and inspection reports and Delegated-Design Submittals and for erecting mockups.
- D. See Division 01 for submitting warranties Project Record Documents and operation and maintenance manuals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. General: The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of contract drawings in electronic form for Contractor's use in preparing submittals. See Paragraph 1.4 and 1.5 on the Contractor's use of CAD Files
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 for list of submittals and time requirements for scheduled performance of related construction activities.
  - 1. The Contractor shall prepare and submit to the Architect, not later than 30 days following the Date of Commencement, and prior to the Contractor's first Application for Payment, a schedule of all Shop Drawings and Submittals as required by the Contract Documents.
  - 2. No Applications for Payment will be reviewed or approved until receipt and approval of the Submittal Schedule.
  - 3. Schedule shall indicate dates for submission.
  - 4. All Shop Drawings, Samples and Submittals for approval shall be completed within one hundred twenty (120) calendar days following the Date of Commencement.
  - 5. The Architect will schedule his manpower to review submittals based on the time limits established above.

- a. Submittals by the Contractor received beyond the time limit established above may affect the Architects manpower schedule resulting in additional cost; the Contractor shall reimburse the Owner for the costs of the Architect's services for the review or approval beyond the time stipulated above.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
1. Initial Review: **Allow 15 work days for initial review of each submittal.** Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. **Allow 15 work days for processing each resubmittal.**
  4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Unique identifier, including revision number.
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
  2. Transmittal Form: Use AIA Document G810 or CSI Form 12.1A.
  3. If a submittal is delivered to the Architect on digital media such as a CD or DVD, include a transmittal form with the package. If a submittal is sent electronically, include a digital transmittal form with the correspondence.

- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.
- K. Submittal Review by Architect:
  - 1. The Architect will review each of the Contractor's submittals one initial time, and, should re-submittal be required, one additional time to verify that the reason(s) for re-submittal have been addressed by the Contractor and corrections made.
  - 2. Any review required by the Architect, other than the two (2) indicated above, will be considered additional scope of work for the Architect, and the Contractor shall reimburse the Owner for all costs incurred, including the cost of the Architect's services, made necessary to review such additional re-submittals.

#### 1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request, copies of Architect's CAD files may be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
  - 1. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 of the General Conditions shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic means involving computers.
  - 2. The Contractor shall not transfer or reuse Instruments of Service in electronic or machine readable form without the prior consent of the Architect and a signed Electronic Machine Readable Release Form submitted to the Architect.
  - 3. Sub Contractors and Material Suppliers must communicate through the Contractor for the use of Instruments of Service in Electronic Form.
  - 4. **The ADW Electronic Machine Readable Release Form following this Section must be submitted along with subsequent fees associated with the files as noted on the form prior to the Architect providing the files.**
  - 5. **The request, signed release form and fee must be submitted to allow 5 working days for the Architect to perform this service.**

#### 1.5 CONTRACTOR'S USE OF ENGINEER'S AND CONSULTANT'S CAD FILES

- A. **General: The request for the Architect's Engineers and Consultants CAD files shall be at the discretion of the Engineers and Consultants and under the Engineers and Consultants identified conditions.**

### PART 2 - PRODUCTS

#### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  - 1. Submit one electronic copy in a digital file format. Digital file submittals must be legible and able to accept digital commenting from industry standard tools such as Adobe Acrobat. Digital file submittals shall not restrict the ability to be printed, the ability to have content copied, or the ability to have pages extracted or added.
  - 2. The General Contractor will be responsible for printing any hard copies of the submittals otherwise required by the Owner, Building Inspector, Fire Marshall, or other reviewing body.

3. Partial or incomplete submittals are not acceptable.
  - a. Any submittal or shop drawing received by the Architect, that does not contain all portions required by each Section of the Specification, will be returned not reviewed, not logged and will be considered non-responsive.
  - b. Requests for exceptions must be submitted in writing by the Contractor for evaluation and response, a minimum of 30 days prior to the submittal date indicated on the Contractor's approved/updated Submittal Schedule.
  
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with recognized trade association standards.
    - i. Compliance with recognized testing agency standards.
  
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Notation of coordination requirements.
    - j. Notation of dimensions established by field measurement.
  2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
  
- D. Coordination Drawings: Comply with requirements in Division 01.
  
- E. Samples: Prepare physical units of materials or products, including the following:
  1. Comply with requirements in Division 01 for mockups.
  2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.
  4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side.
  5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
  6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.
- G. Delegated-Design Submittal: Comply with requirements in Division 01.
- H. Submittals Schedule: Comply with requirements in Division 01.
- I. Application for Payment: Comply with requirements in Division 01.
- J. Schedule of Values: Comply with requirements in Division 01.
- K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements in Division 01.
- B. Contractor's Construction Schedule: Comply with requirements in Division 01.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

- Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.
- R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Reviewed
  - 2. Revise as noted
  - 3. Revise and resubmit
  - 4. Rejected
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01 33 00





## ELECTRONIC MACHINE-READABLE FILE RELEASE

At your request, ADW Architects, p.a. (ADW) will provide the Contractor: \_\_\_\_\_ with electronic machine readable files for your convenience and use in the preparation of documents subject to the following terms and conditions related to the following project:

**Project:** \_\_\_\_\_

ADW utilizes electronic machine-readable files that are compatible with Autodesk and Bentley software. The files furnished, if so requested, will be exported to a .dwg format. ADW makes no representation as to the compatibility of these files with your hardware and/or software. The Contractor shall understand that the automated conversion of information and data from the system and format used by ADW to an alternate system or format cannot be accomplished without the introduction of inaccuracies, anomalies and errors, whether inadvertently or otherwise. In the event project documentation provided in electronic machine-readable format is so converted, the Contractor agrees to assume all risks associated therewith and, to the fullest extent permitted by law, to hold harmless and indemnify ADW from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising therefrom in connection therewith.

Data contained on these electronic machine-readable files is part of ADW's instruments of service and shall not be used by the Contractor or anyone else receiving this data through and from the Contractor for any purpose other than as a convenience in the preparation of documents pertaining to the specific project as indicated on the files furnished. The Contractor recognizes that changes or modifications to ADW's instruments of professional service introduced by anyone other than ADW may result in adverse consequences, which ADW can neither predict nor control. Therefore, and in consideration of ADW's agreement to deliver its instruments of professional service in an electronic machine-readable format, the Contractor agrees, to the fullest extent permitted by law, to hold harmless and indemnify ADW from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising out of or in any way connected with the modification, misinterpretation, misuse, or reuse by others of the electronic machine-readable information and data provided by ADW under this agreement. The foregoing indemnification applies, without limitation, to any use of the project documentation on other projects, for additions, or for completion by others, excepting only such use as may be authorized, in writing, by ADW.

These electronic or machine-readable files are not Contract Documents. Significant differences may exist between these electronic machine-readable files and corresponding hard copy Contract Documents due to addenda, change orders or other revisions. ADW makes no representation regarding the accuracy or completeness of the electronic or machine-readable files you receive. In the event that a conflict arises between the signed Contract Documents prepared by ADW and the electronic machine-readable files, signed Contract Documents shall govern. The Contractor is responsible for determining if any conflict exists. By your use of these files, you are not relieved of your duty to fully comply with the Contract Documents, including and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other Contractors.

Under no circumstances shall delivery of the electronic machine-readable files for use by The Contractor be deemed a sale by ADW and ADW makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall ADW Architects be liable for any loss of profit or any consequential damages. Usage by any parties of the data contained in the electronic machine-readable files released shall constitute agreement to these terms. However, for record keeping we request that you sign this agreement, copy it for your files and return the original hard copy to us along with requested files and the required payment for this service.

**The cost of providing this service will be \$90.00 per CAD file request payable to:**

**ADW Architects, pa  
Six Coliseum Center  
2815 Coliseum Center Drive  
Suite 500  
Charlotte, N.C. 28217**

Acknowledged and accepted by:

\_\_\_\_\_  
**Company**

\_\_\_\_\_  
**Authorized Representative**

\_\_\_\_\_  
**Date**



## SECTION 01 40 00 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 2. Review Divisions 02 through 49 sections for specific test and inspection requirements.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

#### 1.4 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

#### 1.5 SUBMITTALS

- A. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- C. Not later than 30 calendar days after the Notice to Proceed date, the contractor shall furnish to the Architect for review a complete list of all subcontractors and all material and equipment to be used in the Project showing the manufacturer, supplier, trade name, and model number of each. Where the specification allows a choice, the list shall indicate the Contractor's choice. This list shall follow the sequence of the sections of the specifications.

#### 1.6 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- B. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
- C. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- F. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

#### 1.7 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
1. Testing agency will notify Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  5. Testing agency will retest and reinspect corrected work.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field-curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
  2. Notify testing agency and Architect at least 48 hours in advance of time required to perform testing services.
  3. Notify testing agency and Architect at least 72 hours in advance to inspect concrete reinforcing placement prior to pouring concrete or grouting masonry.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

## SECTION 01 41 00 - SPECIAL INSPECTIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to individual technical specification sections for specific qualifications, inspections, tests, frequency, and standards required.

#### 1.2 GENERAL REQUIREMENTS

- A. Special Inspections shall be in accordance with Chapter 17 of the International Building Code.
- B. The program of Special Inspection is a system intended to ensure that the work is performed in accordance with the Contract Documents. These services do not relieve the Contractor and/or the Construction Manager of responsibility for compliance with the requirements of the Contract Documents.
- C. This specification section is intended to inform the Contractor and/or the Construction Manager of the Owner's Special Inspection program and the extent of the responsibilities. This specification section is also intended to notify the Special Inspector, Testing Company/Testing Laboratory, and other Agents of the Special Inspector of their requirements and responsibilities.
- D. Perform inspections in accordance with industry standard referenced for specific material or procedure unless other criteria are specified. In the absence of a referenced standard, perform inspections in accordance with generally accepted industry standards.
- E. Failure to detect defective work or materials shall in no way prevent later rejection if defective work or materials are discovered.

#### 1.3 SCHEDULE OF SPECIAL INSPECTIONS

- A. Required Special Inspections are described on the Drawings.

#### 1.4 DEFINITIONS

- A. Testing: Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.
- B. Inspection: Evaluation of systems, primarily requiring observation and judgment.

- C. Special Inspection: Special Inspection herein includes items required by the current State Building Code, and other items which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure.
- D. Structural Engineer of Record (SER): The Licensed Engineer in responsible charge of the structural design for the project.
- E. Testing Agency (TA):
  - 1. Testing Agency: Approved independent materials testing agency acceptable to the Owner, Architect, and SER.
- F. Special Inspector (SI): A licensed professional engineer responsible for administering and performing all Special Inspections required by the Statement of Special Inspections.
- G. Agents of Special Inspection (AI): Individual inspectors performing specific Special Inspections on behalf of the Special Inspector.
- H. Building Official: The Officer or duly authorized representative charged with the administration and enforcement of the State Building Code.

#### 1.5 QUALIFICATIONS

- A. The Special Inspector shall be a licensed Professional Engineer (licensed in state in which project is located) experienced with the type of work requiring Special Inspections, who is approved by the Owner, Structural Engineer of Record (SER) and Building Official.
- B. Required inspector's qualifications for the Special Inspector and Agents of the Special Inspector are described in the attached Statement of Special Inspection.

#### 1.6 SUBMITTALS

- A. The Special Inspector shall submit to the Owner for review a copy of their qualifications which shall include the names and qualifications of each of the agents of Special Inspection who will be performing inspections.

#### 1.7 PAYMENT

- A. The Owner shall engage and pay for the services of the Special Inspector and Agents of the Special Inspector.
- B. The Contractor and/or Construction Manager shall be responsible for the cost of any re-inspection of work which fails to comply with the requirements of the Contract Documents.

#### 1.8 RESPONSIBILITIES/AUTHORITY

- A. Special Inspection:



1. Special Inspector and Agents of Special Inspections:
  - a. Sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.
  - b. Inspect the work assigned for conformance with the contract documents and applicable material and workmanship provisions of the code. Perform inspection in a timely manner to avoid delay of work.
  - c. Bring nonconforming items to the immediate attention of the Contractor and/or Construction Manager for correction, then, if uncorrected after a reasonable period of time, to the attention of the Structural Engineer of Record, the Building Official, and to the Owner.
  - d. Submit inspection reports to the Contractor and/or Construction Manager, the Structural Engineer of Record, Owner, and other designated persons in accordance with the Statement of Special Inspection.
  - e. Submit a final signed report stating whether the work requiring Special Inspection was, to the best of the Special Inspector's knowledge, in conformance with the contract documents and the applicable workmanship provisions of the code.
2. Architect:
  - a. Expedite resolution of construction issues.
3. Structural Engineer of Record:
  - a. Identify items requiring Special Inspection and define qualifications of Special Inspector required for work.
  - b. Prepare and sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.
  - c. Review reports issued by Special Inspector.
  - d. Assist in resolution of construction issues identified by Special Inspector.
4. Testing Agency:
  - a. When engaged as a Special Inspector, provide Special Inspection services as noted in Item 1.8.A.1.
  - b. Copy Special Inspector on all materials testing reports.
5. Contractor/Construction Manager:
  - a. Arrange and attend all pre-construction meetings to review scope of Special Inspection. Include the Building Official, Owner, Architect, Structural Engineer of Record, Special Inspector, Testing Agency, and other parties concerned.
  - b. Post or make available the Statement of Special Inspection within the project site office. Provide timely notification to those parties designated on the schedule so they may properly prepare for and schedule their work.
  - c. Provide Special Inspector access to the approved plans and specifications at the project site.
  - d. Review all reports issued by Special Inspector.
  - e. Retain at the project site all reports submitted by the Special Inspector for review by the building official upon request.
  - f. Correct, in a timely manner, deficiencies identified in inspection reports.

- g. Provide safe access to the work requiring inspection.
  - h. Provide labor and facilities to provide access to the work and to facilitate inspection.
  - i. Sign the Contractor's Statement of Responsibility, if required, prior to commencing construction.
6. Fabricator/Supplier:
- a. Submit one copy of all material certificates and other quality assurance documents as required in the Statement of Special Inspections to the Special Inspector.
7. Building Official:
- a. Accept and sign completed Statement of Special Inspection.
  - b. Review the final report submitted by Special Inspector.
  - c. Determine work, which, in the Building Official's opinion, involves unusual hazards or conditions (IBC 1705.1.1 – Special Cases).
8. Owner:
- a. Provide and pay cost of Special Inspection services.
  - b. Provide Special Inspector with Contract Documents and accepted shop drawings.
  - c. Provide Special Inspector with full access to the site at all times.
  - d. Sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.

#### 1.9 INSPECTION NOTES

- A. Contractor and/or Construction Manager provide minimum of 24 hours' notice for all items requiring inspection. Do not construct items requiring inspection services until testing and inspection services are available. Do not enclose or obscure items requiring inspection services until inspection services are performed.

#### 1.10 LIMITS ON AUTHORITY

- A. The Special Inspector may not release, revoke, alter, or increase the requirements of the Contract Documents.
- B. The Special Inspector will not have control over the Contractor and/or Construction Manager means or methods of construction.
- C. The Special Inspector shall not be responsible for construction site safety.
- D. The Special Inspector has no authority to stop the work.

## 1.11 DAILY RECORDS AND REPORTS

- A. Detailed daily reports shall be prepared by Special Inspector and Agents of Special Inspection of each inspection and submitted to the Special Inspector. Reports shall include, but not be limited to:
1. Date of inspection.
  2. Name of inspector or agent.
  3. Location of specific areas inspected.
  4. Description of inspection and results.
  5. Applicable ASTM standard.
  6. Weather conditions.
  7. Identification of product and specification section.
- B. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor and/or Construction Manager. If the discrepancies are not corrected, the Special Inspector shall notify the Structural Engineer of Record and Owner. Reports shall document all discrepancies identified and the corrective action taken.
- C. The Testing Company/Testing Laboratory shall immediately notify the Special Inspector of any test results which fail to comply with the requirements of the Contract Documents.

## 1.12 MONTHLY REPORTS

- A. Monthly reports shall be prepared by the Special Inspector. Reports shall include, but not be limited to:
1. Summary of elements inspected during that month.
  2. Copies of all discrepancies noted during that month.
  3. Report of status of discrepancies including resolution of discrepancies.
  4. Summary of all material certifications and quality assurance documents collected and reviewed during that month.

## 1.13 FINAL REPORT OF SPECIAL INSPECTIONS

- A. The Final Report of Special Inspections shall be completed by the Special Inspector and submitted to the Structural Engineer of Record, Owner, Contractor and/or Construction Manager, and Building Official prior to the issuance of a Certificate of Use and Occupancy.
- B. The Final Report of Special Inspections will certify that all required inspections have been performed and will itemize any discrepancies and how those discrepancies were resolved.

END OF SECTION 01 41 00



## SECTION 01 42 00 - REFERENCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
  - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl1@dom1

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434
CFR	Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr	(888) 293-6498 (202) 512-1530
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl2@dom1

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
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AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association www.ahardbd.org	(847) 934-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.e-architect.com	(202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
ANLA	American Nursery & Landscape Association www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASTM	American Society for Testing and Materials www.astm.org	(610) 832-9585
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The)	(703) 620-0010

	www.bia.org	
CCFSS	Center for Cold-Formed Steel Structures www.umn.edu/~ccfss	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIMA	EIFS Industry Members Association www.eifsfacts.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FMG (FM)	FM Global (Formerly: FM - Factory Mutual System) www.fmgglobal.com	(401) 275-3000
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANNA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/ganna	(785) 271-0208
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSI	Light Gage Structural Institute www.loseke.com	(972) 370-0967
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association) www.lma.org	(201) 664-2700
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(312) 201-0193
MFMA	Metal Framing Manufacturers Association	(312) 644-6610
MIA	Marble Institute of America www.marble-institute.com	(614) 228-6194
NAAMM	National Association of Architectural Metal Manufacturers	(312) 332-0405



NAIMA	<a href="http://www.naamm.org">www.naamm.org</a> North American Insulation Manufacturers Association (The)	(703) 684-0084
	<a href="http://www.naima.org">www.naima.org</a>	
NCMA	National Concrete Masonry Association	(703) 713-1900
	<a href="http://www.ncma.org">www.ncma.org</a>	
NCPI	National Clay Pipe Institute	(414) 248-9094
	<a href="http://www.ncpi.org">www.ncpi.org</a>	
NECA	National Electrical Contractors Association	(301) 657-3110
	<a href="http://www.necanet.org">www.necanet.org</a>	
NEMA	National Electrical Manufacturers Association	(703) 841-3200
	<a href="http://www.nema.org">www.nema.org</a>	
NETA	InterNational Electrical Testing Association	(303) 697-8441
	<a href="http://www.netaworld.org">www.netaworld.org</a>	
NFPA	National Fire Protection Association	(800) 344-3555
	<a href="http://www.nfpa.org">www.nfpa.org</a>	(617) 770-3000
NFRC	National Fenestration Rating Council	(301) 589-6372
	<a href="http://www.nfrc.org">www.nfrc.org</a>	
NGA	National Glass Association	(703) 442-4890
	<a href="http://www.glass.org">www.glass.org</a>	
NHLA	National Hardwood Lumber Association	(800) 933-0318
	<a href="http://www.natlhardwood.org">www.natlhardwood.org</a>	(901) 377-1818
NLGA	National Lumber Grades Authority	(604) 524-2393
	<a href="http://www.nlga.org">www.nlga.org</a>	
NPA	National Particleboard Association (See CPA)	
NRCA	National Roofing Contractors Association	(800) 323-9545
	<a href="http://www.nrca.net">www.nrca.net</a>	(847) 299-9070
NRMCA	National Ready Mixed Concrete Association	(888) 846-7622
	<a href="http://www.nrmca.org">www.nrmca.org</a>	(301) 587-1400
NSA	National Stone Association	(800) 342-1415
	<a href="http://www.aggregates.org">www.aggregates.org</a>	(703) 525-8788
NTMA	National Terrazzo and Mosaic Association, Inc.	(800) 323-9736
	<a href="http://www.ntma.com">www.ntma.com</a>	(703) 779-1022
NWWDA	National Wood Window and Door Association (See WDMA)	
PCI	Precast/Prestressed Concrete Institute	(312) 786-0300
	<a href="http://www.pci.org">www.pci.org</a>	
PDCA	Painting and Decorating Contractors of America	(800) 332-7322
	<a href="http://www.pdca.com">www.pdca.com</a>	(703) 359-0826
PDI	Plumbing & Drainage Institute	(800) 589-8956
	<a href="http://www.pdionline.org">www.pdionline.org</a>	(508) 230-3516
RCSC	Research Council on Structural Connections	(800) 644-2400
	<a href="http://www.boltcouncil.org">www.boltcouncil.org</a>	(312) 670-2400
RMA	Rubber Manufacturers Association	(800) 220-7620
	<a href="http://www.rma.org">www.rma.org</a>	(202) 682-4800
SDI	Steel Deck Institute	(847) 462-1930
	<a href="http://www.sdi.org">www.sdi.org</a>	
SDI	Steel Door Institute	(440) 899-0010
	<a href="http://www.steeldoor.org">www.steeldoor.org</a>	
SGCC	Safety Glazing Certification Council	(315) 646-2234
	<a href="http://www.sgcc.org">www.sgcc.org</a>	
SIGMA	Sealed Insulating Glass Manufacturers Association	(312) 644-6610
	<a href="http://www.sigmaonline.org/sigma">www.sigmaonline.org/sigma</a>	
SJI	Steel Joist Institute	(843) 626-1995

SMACNA	www.steeljoist.org Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPI	The Society of the Plastics Industry www.plasticsindustry.org	(202) 974-5200
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 444-0242
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(312) 456-5590
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(800) 837-8303 (412) 281-2331
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TPI	Truss Plate Institute	(608) 833-5900
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl3		
BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl4@dom1

CPSC	Consumer Product Safety Commission	(800) 638-2772
	<a href="http://www.cpsc.gov">www.cpsc.gov</a>	(301) 504-0990
EPA	Environmental Protection Agency	(202) 260-2090
	<a href="http://www.epa.gov">www.epa.gov</a>	
OSHA	Occupational Safety & Health Administration	(202) 693-1999
	<a href="http://www.osha.gov">www.osha.gov</a>	
USPS	Postal Service	(202) 268-2000
	<a href="http://www.usps.com">www.usps.com</a>	

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00



## SECTION 01 45 29 - TESTING LABORATORY SERVICES

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. The Owner will employ and pay for the services of an independent testing laboratory to perform specified testing.
  - 1. Contractor shall cooperate with laboratory to facilitate the execution of its required services.
  - 2. The Contractor shall be fully responsible for seeing that all materials meet the Project requirements. Failure of the Architect or testing laboratory to detect defective work, workmanship, or materials shall in no way prevent rejection and the Contractor taking approved corrective action when such defects are discovered. The Architect shall not be obligated to make final acceptance.

#### 1.02 LABORATORY DUTIES:

- A. Cooperate with Architect and Contractor; provide qualified personnel.
- B. Perform specified inspections, sampling and testing of materials and methods of construction. Comply with specified standards and ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of the Work or products.
  - 1. Promptly submit written report of each test and inspection; one copy each to the Architect, Owner, Contractor, and one copy to Record Documents file. Each report shall, at a minimum, include:
    - a. Date issued.
    - b. Project title and number.
    - c. Testing laboratory name, address and telephone number.
    - d. Name and signature of laboratory inspector.
    - e. Date and time of sampling or inspection.
    - f. Record of temperature and weather conditions.
    - g. Date of test.
    - h. Identification of product and specification section.
    - i. Location of sample or test in the Project.
    - j. Type of inspection or test.
    - k. Results of tests and compliance with Contract Documents.
    - l. Interpretations of test results.
  - 2. Perform additional tests as required by the Architect or the Owner.

#### 1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY:

- A. Laboratory
  - 1. Release, revoke, alter or enlarge on requirements of the Contract Documents.
  - 2. Approve or accept any portion of the Work.
  - 3. Perform any duties of the Contractor.
  - 4. Give instruction to the Contractor's workman in the field. All contact shall be with the Architect (or his representative) and the Contractor's Project Manager.

## 1.04 CONTRACTOR'S RESPONSIBILITIES:

- A. Cooperate with laboratory personnel, provide access to Work, to manufacturer's operations.
- B. Secure and deliver to the laboratory, adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.
- D. Furnish copies of products test reports as required.
- E. Furnish incidental labor and facilities:
  - 1. To provide access to Work to be tested.
  - 2. To obtain and handle samples at the Project site or at the source of the project to be tested.
  - 3. To facilitate inspections and tests.
  - 4. For storage and curing of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence. The contractor shall reimburse the owner if an inspection fails for a second time, the second test and any subsequent tests shall be paid for by the GC.
- G. The Contractor may for his own convenience, employ and pay for a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing. This shall be done with the understanding that:
  - 1. The additional testing shall be accomplished in accordance with the General Conditions;
  - 2. That the finds of such additional inspections, samplings, and testing shall in no way be binding upon the Owner and the Architect;
  - 3. That any such additional inspections, samplings and testing shall be performed at no additional cost to the Owner.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

END OF SECTION 01 45 29

## SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. See Division 01 for progress cleaning requirements.

#### 1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

#### 1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.
- B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.
- C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.
- D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

#### 1.4 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

#### 1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

#### 1.6 PROJECT CONDITIONS

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
  - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service

during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.
- C. Parking and Traffic Control: Contractor shall be responsible for obtaining and erecting street/parking lot signage as necessary to divert traffic away from staging areas, etc. Contractor is to coordinate signage requirements with the Town and Architect. All associated costs are to be borne by the Contractor. Contractor shall provide area for parking for subcontractors, Architect and Owner representatives.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Pavement: Comply with Division 32.
- C. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails, with galvanized barbed-wire top strand.
- D. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete bases for supporting posts.
- E. Wood Enclosure Fence: Plywood, 6 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- F. Lumber and Plywood: Comply with requirements in Division 06 Section "General Carpentry."
- G. Roofing: Standard-weight, mineral-surfaced, asphalt shingles or asphalt-impregnated and -coated, mineral-surfaced, roll-roofing sheet.
- H. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36.
- I. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- J. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
- K. Paint: Comply with requirements in Division 9 Section "Painting."
- L. Water: Potable.

### 2.2 EQUIPMENT



- A. Field Offices: Prefabricated, mobile units, or job-built construction with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water, drinking-water units, including paper cup supply.
  - 1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.
- E. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 2. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

- B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.
1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
  2. Connect temporary sewers to municipal system as directed by sewer department officials.
  3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
  4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.
1. Provide rubber hoses as necessary to serve Project site.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Facilities will be located at sites approved by Owner.
1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- G. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
1. Install electric power service underground, unless overhead service must be used.
  2. Install power distribution wiring overhead and rise vertically where least exposed to damage.
- H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  - 2. Provide one 100-W incandescent lamp per 500 sq. ft., uniformly distributed, for general lighting, or equivalent illumination.
  - 3. Provide one 100-W incandescent lamp every 50 feet in traffic areas.
  - 4. Provide one 100-W incandescent lamp per story in stairways and ladder runs, located to illuminate each landing and flight.
  - 5. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.
  
- J. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities.
  - 1. At each telephone, post a list of important telephone numbers, including police and fire departments, ambulance service, Architects' office, Engineers' offices and Owner's office.
  - 2. Provide an answering machine or voice-mail service and a facsimile machine on superintendent's telephone.
  - 3. Furnish superintendent with electronic paging device for use when away from field office.
  - 4. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access. Coordinate with Architect on location.
  - 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
  - 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
  
- B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.
  
- C. Dewatering Facilities and Drains: Comply with requirements in applicable Division 31 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
  
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 01 Section for progress cleaning requirements.
  - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
  
- E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

## 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- B. Material Storage Enclosure Fence: Install enclosure fence with lockable gates to completely enclose and hide the materials storage, or store as much material in locked trailers as practicable.
  - 1. Set fixed 6'-0" high chain-link fence posts in compacted mixture of gravel and earth.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
  - 3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  - 4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
  - 5. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  - 6. Protect air-handling equipment.
  - 7. Weatherstrip openings.
- F. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - 1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Locate fire extinguishers where convenient and effective for their intended purpose.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
  - 4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  - 5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
7. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.5 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
  2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00



## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "Allowances" for products selected under an allowance.
  - 2. Division 01 Section "Alternates" for products selected under an alternate.
  - 3. Division 01 Section "References" for applicable industry standards for products specified.
  - 4. Division 01 Section "Closeout Procedures" for submitting warranties for contract closeout.
  - 5. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. **Product List:** Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Form:
    - a. Specification Section number and title.
    - b. Proprietary name, model number, and similar designations
    - c. Manufacturer's name and address.
    - d. Supplier's name and address.
    - e. Installer's name and address.
    - f. Identification of items that require early submittal approval for scheduled delivery date.
  - 3. **Completed List:** Within sixty (60) days after date of commencement of the Work, submit three (3) copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  - 4. **Architect's Action:** Architect will respond in writing to Contractor within fifteen (15) days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
- B. **Substitution Requests:** Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. **Documentation:** Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - d. Samples, where applicable or requested.
    - e. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - f. Cost information, including a proposal of change, if any, in the Contract Sum.
    - g. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
    - h. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.



2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
  - a. Form of Acceptance: Change Order.
  - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
  1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  5. Store products to allow for inspection and measurement of quantity or counting of units.
  6. Store materials in a manner that will not endanger Project structure.
  7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  9. Protect stored products from damage.

### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
  - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."
- D. All warranties/guarantees shall become effective on the date of Substantial Completion as established by the Architect. Written warranties/guarantees shall be signed by the manufacturer or subcontractor and countersigned by the Contractor. All warranties/guarantees shall be addressed to the Owner in care of the Architect.

## PART 2 - PRODUCTS

### 2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  - 4. Where products are accompanied by the term "as selected," Architect will make selection.
  - 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  - 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
  - 1. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  - 2. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by the manufacturers that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  - 3. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with

- provisions in “Comparable Products” article to obtain approval for use of an unnamed product.
4. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in “Comparable Products” article to obtain approval for use of an unnamed product.
  5. Product Options: Where Specification paragraphs titled "Product Options” indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in “Product Substitutions” article.
  6. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
    - a. Substitutions may be considered, unless otherwise indicated.
  7. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect’s sample. Architect’s decision will be final on whether a proposed product matches satisfactorily.
    - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on “substitutions” for selection of a matching product.
  8. Visual Selection Specification: Where Specifications include the phrase “as selected from manufacturer’s colors, patterns, textures” or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase “standard range of colors, patterns, textures” or similar phrase, Architect will select color, pattern, or texture from manufacturer’s product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase “full range of colors, patterns, textures” or similar phrase, Architect will select color, pattern, or texture from manufacturer’s product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within sixty (60) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

2. Requested substitution must be made in writing directly from the Contractor and not from a subcontractor or material supplier.
3. Requested substitution does not require extensive revisions to the Contract Documents.
4. Requested substitution is consistent with the Contract Documents and will produce indicated results.
5. Substitution request is fully documented and properly submitted.
6. Requested substitution will not adversely affect Contractor's Construction Schedule.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work and that he waives all claims for additional reimbursement related to the substitution which subsequently become apparent.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
11. By forwarding a substitution request the Contractor represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.

### 2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
  1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

## SECTION 01 73 00 – EXECUTION REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  1. Construction layout.
  2. Field engineering and surveying.
  3. General installation of products.
  4. Coordination of Owner-installed products.
  5. Progress cleaning.
  6. Starting and adjusting.
  7. Protection of installed construction.
  8. Correction of the Work.
- B. Related Sections include the following:
  1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  2. Division 01 Section "Submittal Procedures" for submitting surveys.
  3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
  4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

#### 1.3 QUALITY ASSURANCE

- 1.4 Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of construction affecting the Work.
  1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions. Upon acceptance of surfaces and conditions, any adjustments required for a satisfactory installation shall be made by the Contractor who accepted the Work.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

### 3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
  - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.



- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00



## SECTION 01 73 29 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 07 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
  - 2. Divisions 02 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
    - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 23 and 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

#### 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

### 1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- D. Cutting and Patching Conference: If extensive cutting and patching is required, before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as

possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 01 73 29

## SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Salvaging non-hazardous demolition and construction waste.
  - 2. Recycling non-hazardous demolition and construction waste.
  - 3. Disposing of non-hazardous demolition and construction waste.
- B. See Division 01 Section "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures and site improvements, and for disposition of hazardous waste.
- C. See Division 04 Section "Unit Masonry" for disposal requirements for masonry waste.

#### 1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible.

#### 1.4 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 2 weeks after the Notice to Proceed.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit 3 copies of report. Include separate reports for demolition and construction waste. Include the following information:
  - 1. Material category.
  - 2. Generation point of waste.
  - 3. Total quantity of waste in tons (tonnes).
  - 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
  - 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
  - 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
  - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, submit 3 copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

#### 1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Waste Management Conference: Conduct conference at Project site.



## 1.6 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification and waste reduction work plan. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within 3 days of submittal return.
  2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Owner's Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area designated by Owner.
5. Protect items from damage during transport and storage.

### 3.3 GENERAL WASTE RECYCLING

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

- a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

### 3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
  1. Pulverize concrete to maximum 4-inch size.
- B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
  1. Pulverize masonry to maximum 4-inch size.
  2. Clean and stack undamaged, whole masonry units on wood pallets.
- C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- D. Metals: Separate metals by type.
  1. Structural Steel: Stack members according to size, type of member, and length.
  2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- E. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- F. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
  1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- G. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
  1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- H. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- I. Plumbing Fixtures: Separate by type and size.

- J. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- K. Lighting Fixtures: Separate lamps by type and protect from breakage.
- L. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

### 3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.
- C. Wood Materials:
  - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
  - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
  - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

### 3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19



## SECTION 01 77 00 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Project Record Documents.
  - 3. Operation and maintenance manuals.
  - 4. Warranties.
  - 5. Instruction of Owner's personnel.
  - 6. Final cleaning.
- B. See Division 01 for requirements for Applications for Payment for Substantial and Final Completion.
- C. See Division 01 for submitting Final Completion construction photographs and negatives.
- D. See Divisions 02 through 49 for specific closeout and special cleaning requirements for products of those Sections.

#### 1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
  - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 8. Complete startup testing of systems.
  - 9. Submit test/adjust/balance records.
  - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 11. Advise Owner of changeover in heat and other utilities.
  - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - 13. Complete final cleaning requirements, including touchup painting.
  - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.
- C. As a further condition of Substantial Completion, the Contractor(s) shall certify that all remaining Work will be completed within 30 consecutive calendar days following the Date of Substantial Completion, and the failure to do so shall automatically reinstate the provisions for damages due the Owner as contained elsewhere in the Agreement or as provided by law for such period of time as may be required by the Contractor to fully complete the Work whether the Owner has occupied the Work or not.

### 1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01.
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

### 1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

### 1.5 PROJECT RECORD DOCUMENTS (submit 2 hard copies and 2 electronic copies on CD of all record documents)



- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
  - B. Record Drawings: Maintain and submit blue- or black-line white prints of Contract Drawings and Shop Drawings.
    - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
      - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
    - 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
    - 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
  - C. Record Specifications: Submit Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
    - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
    - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
    - 3. Note related Change Orders and Record Drawings, where applicable.
  - D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- 1.6 OPERATION AND MAINTENANCE MANUALS (submit 2 hard copies and 2 electronic copies on CD of all operation and maintenance manuals)
- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
    - 1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
    - 2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
  - B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets.

Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

- 1.7 WARRANTIES (submit 2 hard copies and 2 electronic copies on CD of all warranties)
- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
  - B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
    - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
    - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
    - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Provide instructors experienced in operation and maintenance procedures.
  - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
  - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
  - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline.
  - 1. Include instruction for system design and operational philosophy, review of documentation, operations, adjustments, troubleshooting, maintenance, and repair.

### 3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - g. Sweep concrete floors broom-clean in unoccupied spaces.
    - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - j. Remove labels that are not permanent.
    - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
    - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - m. Replace parts subject to unusual operating conditions.
    - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
    - q. Leave Project clean and ready for occupancy.

- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00

# Division 02 – Existing Conditions



## SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. See Division 01 Section "Construction Waste Management and Disposal" for disposal of demolished materials.

#### 1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.3 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
  - 1. Comply with submittal requirements in Division 01 Section "Construction Waste Management and Disposal."

#### 1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Pre-demolition Conference: Conduct conference at Project site.

#### 1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove items as indicated on the Drawings.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.



## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

## 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

### 3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 5. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area as indicated on Drawings.
  - 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.

2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition, cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19



# Division 03 – Concrete



## SECTION 03 10 00 - CONCRETE FORMING AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Form-facing material for cast-in-place concrete.
- 2. Form liners.
- 3. Shoring, bracing, and anchoring.

- B. Related Requirements:

- 1. Section 32 13 13 "Concrete Paving" for formwork related to concrete pavement and walks.

#### 1.3 DEFINITIONS

- A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
- B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction, movement, contraction, and isolation joints
- c. Forms and form-removal limitations.
- d. Shoring and reshoring procedures.
- e. Anchor rod and anchorage device installation tolerances.

## 1.5 ACTION SUBMITTALS

## A. Product Data: For each of the following:

1. Exposed surface form-facing material.
2. Concealed surface form-facing material.
3. Forms for cylindrical columns.
4. Form liners.
5. Form ties.
6. Waterstops.
7. Form-release agent.

## B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
4. Laboratory Test Reports: For liquid floor treatments and curing and sealing compounds, indicating compliance with requirements for low-emitting materials.

## C. Shop Drawings: Prepared by, and signed and sealed by, a qualified professional engineer responsible for their preparation, detailing fabrication, assembly, and support of forms.

1. For exposed vertical concrete walls, indicate dimensions and form tie locations.
2. Indicate dimension and locations of construction and movement joints required to construct the structure in accordance with ACI 301.
  - a. Location of construction joints is subject to approval of the Architect.
3. Indicate location of waterstops.
4. Indicate form liner layout and form line termination details.
5. Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.

## 1.6 INFORMATIONAL SUBMITTALS

## A. Qualification Data: For testing and inspection agency.

## B. Research Reports: For insulating concrete forms indicating compliance with International Code Council Acceptance Criteria AC308.

## C. Field quality-control reports.

## D. Minutes of preinstallation conference.

## 1.7 QUALITY ASSURANCE

## A. Testing and Inspection Agency Qualifications: An independent agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.



## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Form Liners: Store form liners under cover to protect from sunlight.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
  - 1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
  - 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.
- B. Design, engineer, erect, shore, brace, and maintain insulating concrete forms in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
  - 1. Design cross ties to transfer the effects of the following loads to the cast-in-place concrete core:
    - a. Wind Loads: As indicated on Drawings.
      - 1) Horizontal Deflection Limit: Not more than 1/240 of the wall height.

## 2.2 FORM-FACING MATERIALS

- A. As-Cast Surface Form-Facing Material:
  - 1. Provide continuous, true, and smooth concrete surfaces.
  - 2. Furnish in largest practicable sizes to minimize number of joints.
  - 3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete, and as follows:
    - a. Plywood, metal, or other approved panel materials.
    - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      - 1) APA Structural 1 Plyform, B-B or better; mill oiled and edge sealed.
      - 2) APA Plyform Class I, B-B or better; mill oiled and edge sealed.

- B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
  - 1. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class.
  - 1. Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Form Liners:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Architectural Polymers, Inc.
    - b. Fitzgerald Formliners.
    - c. Sika Corporation.
    - d. Spec Formliners, Inc.
  - 2. Face Pattern: Smooth.

### 2.3 WATERSTOPS

- A. Flexible Rubber Waterstops: U.S. Army Corps of Engineers CRD-C 513, for embedding in concrete to prevent passage of fluids through joints, with factory fabricated corners, intersections, and directional changes.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Williams Products, Inc.
  - 2. Profile: Flat dumbbell with center bulb.
  - 3. Dimensions: 4 inches by 3/16 inch thick; nontapered.
- B. Flexible PVC Waterstops: U.S. Army Corps of Engineers CRD-C 572, for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BoMetals, Inc.
    - b. Sika Corporation.
    - c. Vinylex Waterstop & Accessories.
  - 2. Profile: Flat dumbbell with center bulb.
  - 3. Dimensions: 4 inches by 3/16 inch thick; nontapered.

- C. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle Coatings & Waterproofing Inc.
    - b. CETCO, a Minerals Technologies company.
    - c. Concrete Sealants Inc.
    - d. Sika Corporation.
- D. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer-modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Adeka Corporation.
    - b. CETCO, a Minerals Technologies company.
    - c. GCP Applied Technologies Inc.
    - d. Sika Corporation.

## 2.4 RELATED MATERIALS

- A. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034-inch- thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
  2. Form release agent for form liners shall be acceptable to form liner manufacturer.
- F. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION OF FORMWORK

- A. Comply with ACI 301.
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete" for as-cast finishes.
- C. Limit concrete surface irregularities as follows:
  1. Surface Finish-1.0: ACI 117 Class D, 1 inch.
  2. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.
  3. Surface Finish-3.0: ACI 117 Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
  1. Minimize joints.
  2. Exposed Concrete: Symmetrically align joints in forms.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
  1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
  2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
  1. Provide and secure units to support screed strips
  2. Use strike-off templates or compacting-type screeds.
- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.
  1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
  2. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.

- J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
  - K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
    - 1. Determine sizes and locations from trades providing such items.
    - 2. Obtain written approval of Architect prior to forming openings not indicated on Drawings.
  - L. Construction and Movement Joints:
    - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
    - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
    - 3. Place joints perpendicular to main reinforcement.
    - 4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.
      - a. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
    - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
    - 6. Space vertical joints in walls as indicated on Drawings.
      - a. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
    - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
    - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
  - N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
  - O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
  - P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- 3.2 INSTALLATION OF EMBEDDED ITEMS
- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.
    - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
4. Install dovetail anchor slots in concrete structures, as indicated on Drawings.
5. Clean embedded items immediately prior to concrete placement.

### 3.3 INSTALLATION OF WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm.
1. Install in longest lengths practicable.
  2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
  3. Allow clearance between waterstop and reinforcing steel of not less than 2 times the largest concrete aggregate size specified in Section 033000 "Cast-In-Place Concrete."
  4. Secure waterstops in correct position at 12 inches on center.
  5. Field fabricate joints in accordance with manufacturer's instructions using heat welding.
    - a. Miter corners, intersections, and directional changes in waterstops.
    - b. Align center bulbs.
  6. Clean waterstops immediately prior to placement of concrete.
  7. Support and protect exposed waterstops during progress of the Work.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated on Drawings, according to manufacturer's written instructions, by adhesive bonding, mechanically fastening, and firmly pressing into place.
1. Install in longest lengths practicable.
  2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
  3. Protect exposed waterstops during progress of the Work.

### 3.4 REMOVING AND REUSING FORMS

- A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work.

1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
  2. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
1. Align and secure joints to avoid offsets.
  2. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.5 SHORING AND RESHORING INSTALLATION

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.6 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
1. Inspect formwork for shape, location, and dimensions of the concrete member being formed.
  2. Inspect insulating concrete forms for shape, location, and dimensions of the concrete member being formed.

END OF SECTION 03 10 00





## SECTION 03 20 00 - CONCRETE REINFORCING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Steel reinforcement bars.
- 2. Welded-wire reinforcement.

- B. Related Requirements:

- 1. Section 03 38 16 "Unbonded Post-Tensioned Concrete" for reinforcing related to post-tensioned concrete.
- 2. Section 03 41 00 "Precast Structural Concrete" for reinforcing used in precast structural concrete.
- 3. Section 32 13 13 "Concrete Paving" for reinforcing related to concrete pavement and walks.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction contraction and isolation joints.
- c. Steel-reinforcement installation.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For the following:

- 1. Each type of steel reinforcement.
- 2. Bar supports.
- 3. Mechanical splice couplers.

- B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
  2. Health Product Declaration: For each product.
  3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
- C. Shop Drawings: Comply with ACI SP-066:
1. Include placing drawings that detail fabrication, bending, and placement.
  2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Construction Joint Layout: Indicate proposed construction joints required to build the structure.
1. Location of construction joints is subject to approval of the Architect.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
1. Reinforcement To Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M
- B. Material Test Reports: For the following, from a qualified testing agency:
1. Steel Reinforcement:
    - a. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.
  2. Mechanical splice couplers.
- C. Field quality-control reports.
- D. Minutes of preinstallation conference.

#### 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- B. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Store reinforcement to avoid contact with earth.

## PART 2 - PRODUCTS

### 2.1 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- B. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
- C. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- D. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

### 2.2 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
  1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
    - a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.
- C. Mechanical Splice Couplers: ACI 318 Type 1, same material of reinforcing bar being spliced; tension-compression type.
- D. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch in diameter.
  1. Finish: Plain.

### 2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Protection of In-Place Conditions:
  - 1. Do not cut or puncture vapor retarder.
  - 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

## 3.2 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
  - 1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
  - 2. Do not tack weld crossing reinforcing bars.
- C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with ACI 318.
- E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- F. Splices: Lap splices as indicated on Drawings.
  - 1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
  - 2. Stagger splices in accordance with ACI 318.
  - 3. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
  - 4. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.
- G. Install welded-wire reinforcement in longest practicable lengths.
  - 1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice."
    - a. For reinforcement less than W4.0 or D4.0, continuous support spacing shall not exceed 12 inches.
  - 2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches for plain wire.
  - 3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
  - 4. Lace overlaps with wire.

## 3.3 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 1. Place joints perpendicular to main reinforcement.
  - 2. Continue reinforcement across construction joints unless otherwise indicated.
  - 3. Do not continue reinforcement through sides of strip placements of floors and slabs.
- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

## 3.4 INSTALLATION TOLERANCES

- A. Comply with ACI 117.

## 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
  - 1. Steel-reinforcement placement.
  - 2. Steel-reinforcement mechanical splice couplers.
  - 3. Steel-reinforcement welding.

END OF SECTION 03 20 00



## SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

- B. Related Requirements:

- 1. Section 03 10 00 "Concrete Forming and Accessories" for form-facing materials, form liners, insulating concrete forms, and waterstops.
  - 2. Section 03 20 00 "Concrete Reinforcing" for steel reinforcing bars and welded-wire reinforcement.
  - 3. Section 31 20 00 "Earth Moving" for drainage fill under slabs-on-ground.
  - 4. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.

#### 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with fly ash.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete Subcontractor.
  - 2. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction joints, control joints, isolation joints, and joint-filler strips.
- c. Semirigid joint fillers.
- d. Vapor-retarder installation.
- e. Anchor rod and anchorage device installation tolerances.
- f. Cold and hot weather concreting procedures.
- g. Concrete finishes and finishing.
- h. Curing procedures.
- i. Forms and form-removal limitations.
- j. Shoring and reshoring procedures.
- k. Methods for achieving specified floor and slab flatness and levelness.
- l. Floor and slab flatness and levelness measurements.
- m. Concrete repair procedures.
- n. Concrete protection.
- o. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
- p. Protection of field cured field test cylinders.

#### 1.5 ACTION SUBMITTALS

##### A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Aggregates.
4. Admixtures:
  - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
5. Vapor retarders.
6. Floor and slab treatments.
7. Liquid floor treatments.
8. Curing materials.
9. Joint fillers.
10. Repair materials.

##### B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
4. Laboratory Test Reports: For liquid floor treatments and curing and sealing compounds, indicating compliance with requirements for low-emitting materials.

##### C. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.



2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
10. Intended placement method.
11. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

D. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
  - a. Location of construction joints is subject to approval of the Engineer of Record.

E. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

## 1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Curing compounds.
4. Floor and slab treatments.
5. Bonding agents.
6. Adhesives.
7. Vapor retarders.
8. Semirigid joint filler.
9. Joint-filler strips.

10. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Aggregates.

D. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.

E. Research Reports:

1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
2. For sheet vapor retarder/termite barrier, showing compliance with ICC AC380.

F. Minutes of preinstallation conference.

#### 1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

#### 1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301.

#### 1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.

5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

### 2.2 CONCRETE MATERIALS

- A. Regional Materials: Concrete shall be manufactured within 100 miles of Project site from aggregates and cementitious materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles of Project site.
- B. Source Limitations:
1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
  2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
  3. Obtain aggregate from single source.
  4. Obtain each type of admixture from single source from single manufacturer.
- C. Cementitious Materials:
1. Portland Cement: ASTM C150/C150M, Type I/II, gray.
  2. Fly Ash: ASTM C618, Class C or F.
- D. Normal-Weight Aggregates: ASTM C33/C33M, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
1. Alkali-Silica Reaction: Comply with one of the following:
    - a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
    - b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
    - c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance

with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.

2. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
  3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- E. Lightweight Aggregate: ASTM C330/C330M, 3/4-inch nominal maximum aggregate size.
- F. Air-Entraining Admixture: ASTM C260/C260M.
- G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
  2. Retarding Admixture: ASTM C494/C494M, Type B.
  3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
  4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
  5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
  6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- H. Water and Water Used to Make Ice: ASTM C94/C94M, potable.

### 2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 15 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Barrier-Bac; Intoplast Group.
    - b. ISI Building Products.
    - c. Poly-America, L.P.
    - d. Reef Industries, Inc.
    - e. Stego Industries, LLC.
    - f. Tex-Trude.
    - g. W.R. Meadows, Inc.

### 2.4 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BASF Corporation.
    - b. ChemMasters, Inc.

- c. ChemTec International.
  - d. Concrete Sealers USA.
  - e. Dayton Superior.
  - f. Euclid Chemical Company (The); an RPM company.
  - g. Kaufman Products, Inc.
  - h. Laticrete International, Inc.
  - i. Nox-Crete Products Group.
  - j. PROSOCO, Inc.
  - k. SpecChem, LLC.
  - l. US SPEC, Division of US MIX Company.
  - m. Vexcon Chemicals Inc.
  - n. V-Seal Concrete Sealers & Specialty Coatings.
  - o. W.R. Meadows, Inc.
2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## 2.5 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BASF Corporation.
    - b. Bon Tool Co.
    - c. ChemMasters, Inc.
    - d. Dayton Superior.
    - e. Euclid Chemical Company (The); an RPM company.
    - f. Kaufman Products, Inc.
    - g. Lambert Corporation.
    - h. Laticrete International, Inc.
    - i. Metalcrete Industries.
    - j. Nox-Crete Products Group.
    - k. Sika Corporation.
    - l. SpecChem, LLC.
    - m. TK Products.
    - n. Vexcon Chemicals Inc.
    - o. W.R. Meadows, Inc.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
  1. Color:
    - a. Ambient Temperature Below 50 deg F: Black.
    - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
    - c. Ambient Temperature Above 85 deg F: White.

- C. Water: Potable or complying with ASTM C1602/C1602M.
- D. Clear, Waterborne, Membrane-Forming, Non-dissipating Curing Compound: ASTM C309, Type 1, Class B, certified by curing compound manufacturer to not interfere with bonding of floor covering.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Anti-Hydro International, Inc.
    - b. BASF Corporation.
    - c. ChemMasters, Inc.
    - d. Dayton Superior.
    - e. Euclid Chemical Company (The); an RPM company.
    - f. Kaufman Products, Inc.
    - g. Lambert Corporation.
    - h. Laticrete International, Inc.
    - i. Metalcrete Industries.
    - j. Nox-Crete Products Group.
    - k. SpecChem, LLC.
    - l. TK Products.
    - m. Vexcon Chemicals Inc.
    - n. W.R. Meadows, Inc.
- E. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. ChemMasters, Inc.
    - b. Concrete Sealers USA.
    - c. Dayton Superior.
    - d. Euclid Chemical Company (The); an RPM company.
    - e. Kaufman Products, Inc.
    - f. Lambert Corporation.
    - g. Laticrete International, Inc.
    - h. Metalcrete Industries.
    - i. Nox-Crete Products Group.
    - j. Right Pointe.
    - k. SpecChem, LLC.
    - l. TK Products.
    - m. Vexcon Chemicals Inc.
    - n. W.R. Meadows, Inc.
  - 2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## 2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

## 2.7 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4,100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5,000 psi at 28 days when tested in accordance with ASTM C109/C109M.

## 2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
  - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use water-reducing admixture in pumped concrete, concrete for parking structure slabs, and concrete with a w/cm below 0.50.

## 2.9 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 3,000 psi at 28 days.
  3. Maximum w/cm: 0.55.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content: 2.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4 inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- B. Class B: Normal-weight concrete used for foundation walls.
1. Exposure Class: ACI 318 F1, S0, W0, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content:
    - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- C. Class C: Normal-weight concrete used for interior slabs-on-ground.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 3,000 psi at 28 days.
  3. Maximum w/cm: 0.55.
  4. Minimum Cementitious Materials Content: 540 lb/cu. yd.
  5. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  6. Air Content: Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.



7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- D. Class E: Structural lightweight concrete used for interior suspended slabs and concrete toppings/pads over suspended slabs.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 4,000 psi at 28 days.
  3. Calculated Equilibrium Unit Weight: 118 lb/cu. ft., plus or minus 3 lb/cu. ft. as determined by ASTM C567/C567M.
  4. Slump Limit: 3 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content: Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- E. Class F: Normal-weight concrete used for exterior slabs-on-ground, concrete toppings/pads over slabs-on-ground, exterior pads, and balcony topping slabs.
1. Exposure Class: ACI 318 F2, S0, W1, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Minimum Cementitious Materials Content: 540 lb/cu. yd.
  5. Slump Limit: 4 inches, plus or minus 1 inch.
  6. Air Content:
    - a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- F. Class J: Normal-weight concrete used for exterior retaining walls.
1. Exposure Class: ACI 318 F2, S0, W0, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content:
    - a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions:
  - 1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
  - 1. Daily access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
  - 4. Security and protection for test samples and for testing and inspection equipment at Project site.

### 3.3 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
  - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
  - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

### 3.4 INSTALLATION OF VAPOR RETARDER

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
2. Face laps away from exposed direction of concrete pour.
3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
4. Lap joints 6 inches and seal with manufacturer's recommended tape.
5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
7. Protect vapor retarder during placement of reinforcement and concrete.
  - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.

### 3.5 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
  1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by the Engineer of Record.
  2. Place joints perpendicular to main reinforcement.
    - a. Continue reinforcement across construction joints unless otherwise indicated.
    - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
  3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  6. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
  7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
  1. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints:

1. Install dowel bars and support assemblies at joints where indicated on Drawings.
2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
  2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Engineer of Record and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer of Record in writing, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
1. If a section cannot be placed continuously, provide construction joints as indicated.
  2. Deposit concrete to avoid segregation.
  3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.

- a. Do not use vibrators to transport concrete inside forms.
  - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
  - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
  - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Do not place concrete floors and slabs in a checkerboard sequence.
  2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  3. Maintain reinforcement in position on chairs during concrete placement.
  4. Screed slab surfaces with a straightedge and strike off to correct elevations.
  5. Level concrete, cut high areas, and fill low areas.
  6. Slope surfaces uniformly to drains where required.
  7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
  8. Do not further disturb slab surfaces before starting finishing operations.

### 3.7 FINISHING FORMED SURFACES

#### A. As-Cast Surface Finishes:

1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
  - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
  - b. Remove projections larger than 1 inch.
  - c. Tie holes do not require patching.
  - d. Surface Tolerance: ACI 117 Class D.
  - e. Apply to concrete surfaces not exposed to public view.
2. ACI 301 Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/4 inch.
  - c. Patch tie holes.
  - d. Surface Tolerance: ACI 117 Class B.
  - e. Locations: Apply to concrete surfaces as indicated.
3. ACI 301 Surface Finish SF-3.0:
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/8 inch.
  - c. Patch tie holes.
  - d. Surface Tolerance: ACI 117 Class A.

- e. Locations: Apply to concrete surfaces as indicated.
- B. Rubbed Finish: Apply the following to as cast surface finishes where indicated on Drawings:
- 1. Smooth-Rubbed Finish:
    - a. Perform no later than one day after form removal.
    - b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
    - c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
    - d. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 2. Grout-Cleaned Rubbed Finish:
    - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
    - b. Do not clean concrete surfaces as Work progresses.
    - c. Mix 1 part portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
    - d. Wet concrete surfaces.
    - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
    - f. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 3. Cork-Floated Finish:
    - a. Mix 1 part portland cement to 1 part fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint.
    - b. Mix 1 part portland cement and 1 part fine sand with sufficient water to produce a mixture of stiff grout. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
    - c. Wet concrete surfaces.
    - d. Compress grout into voids by grinding surface.
    - e. In a swirling motion, finish surface with a cork float.
    - f. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 4. Scrubbed Finish: After concrete has achieved a compressive strength of from 1,000 to 1,500 psi, apply scrubbed finish.
    - a. Wet concrete surfaces thoroughly and scrub with stiff fiber or wire brushes, using water freely, until top mortar surface is removed and aggregate is uniformly exposed.
    - b. Rinse scrubbed surfaces with clean water.
    - c. Maintain continuity of finish on each surface or area of Work.
    - d. Remove only enough concrete mortar from surfaces to match field sample panels.

## C. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

## 3.8 FINISHING FLOORS AND SLABS

## A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

## B. Scratch Finish:

1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
3. Apply scratch finish to surfaces to receive concrete floor toppings and to receive mortar setting beds for bonded cementitious floor finishes.

## C. Float Finish:

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 (ACI A117M) tolerances for conventional concrete.
3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

## D. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:

## a. Slabs on Ground:

- 1) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  25; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  17.
- b. Suspended Slabs:
  - 1) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  20; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  15. Levelness requirements may be waived for slabs on metal deck.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
  1. Coordinate required final finish with Architect before application.
  2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
  1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
  2. Coordinate required final finish with Architect before application.

### 3.9 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
  1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
  2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
  3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
  1. Coordinate sizes and locations of concrete bases with actual equipment provided.
  2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
  3. Minimum Compressive Strength: As indicated herein.
  4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
  5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
  6. Prior to pouring concrete, place and secure anchorage devices.



- a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - b. Cast anchor-bolt insert into bases.
  - c. Install anchor bolts to elevations required for proper attachment to supported equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.
1. Cast-in inserts and accessories, as shown on Drawings.
  2. Reinforce interior stairs that use concrete fill for the landings and/or treads with either microsynthetic monofilament fibers (at a minimum dosage rate of 1.0 lbs/cy) or 4x4-W1.4xW1.4 welded wire fabric.
  3. Screed, tamp, and trowel finish concrete surfaces.

### 3.10 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
  2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
  3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h, calculated in accordance with ACI 305.1, before and during finishing operations.
- B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
  2. If forms remain during curing period, moist cure after loosening forms.
  3. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
    - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
    - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
    - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
    - d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
    - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
      - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
      - 2) Maintain continuity of coating and repair damage during curing period.
- C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
1. Begin curing immediately after finishing concrete.
  2. Interior Concrete Floors:

- a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12-inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
    - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
    - b) Cure for not less than seven days.
  - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
    - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
    - b) Cure for not less than seven days.
  - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:

- a) Water.
  - b) Continuous water-fog spray.
- c. Floors to Receive Polished Finish: Contractor has option of the following:
- 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- d. Floors to Receive Curing Compound:
- 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
  - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
  - 3) Maintain continuity of coating, and repair damage during curing period.
  - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
- e. Floors to Receive Curing and Sealing Compound:
- 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
  - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
  - 3) Repeat process 24 hours later and apply a second coat. Maintain continuity of coating, and repair damage during curing period.

### 3.11 TOLERANCES

- A. Conform to ACI 117.

### 3.12 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than seven days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
4. Rinse with water; remove excess material until surface is dry.
5. Apply a second coat in a similar manner if surface is rough or porous.

### 3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least one month.
  2. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

### 3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
  1. Repair and patch defective areas when approved by Architect.
  2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
    - a. Limit cut depth to 3/4 inch.
    - b. Make edges of cuts perpendicular to concrete surface.
    - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    - d. Fill and compact with patching mortar before bonding agent has dried.
    - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.

- a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
  - b. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
  - a. Correct low and high areas.
  - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
  - a. Finish repaired areas to blend into adjacent concrete.
5. Correct other low areas scheduled to remain exposed with repair topping.
  - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
  - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
  - a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
  - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
  - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
  - d. Place, compact, and finish to blend with adjacent finished concrete.
  - e. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
  - a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
  - b. Dampen cleaned concrete surfaces and apply bonding agent.
  - c. Place patching mortar before bonding agent has dried.

- d. Compact patching mortar and finish to match adjacent concrete.
  - e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.15 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- 1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
  - 2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  - 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
    - a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
      - 1) Project name.
      - 2) Name of testing agency.
      - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
      - 4) Name of concrete manufacturer.
      - 5) Date and time of inspection, sampling, and field testing.
      - 6) Date and time of concrete placement.
      - 7) Location in Work of concrete represented by samples.
      - 8) Date and time sample was obtained.
      - 9) Truck and batch ticket numbers.
      - 10) Design compressive strength at 28 days.
      - 11) Concrete mixture designation, proportions, and materials.
      - 12) Field test results.
      - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
      - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.

- D. Inspections:
1. Headed bolts and studs.
  2. Verification of use of required design mixture.
  3. Concrete placement, including conveying and depositing.
  4. Curing procedures and maintenance of curing temperature.
  5. Verification of concrete strength before removal of shores and forms from beams and slabs.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C143/C143M:
    - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    - b. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; ASTM C173/C173M volumetric method, for structural lightweight concrete.
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C1064/C1064M:
    - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
  5. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  6. Compression Test Specimens: ASTM C31/C31M:
    - a. Cast and laboratory cure two sets of four 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.
  7. Compressive-Strength Tests: ASTM C39/C39M.
    - a. Test one set of two laboratory-cured specimens at seven days and three sets of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5,000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5,000 psi.
  10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  11. Additional Tests:
    - a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer of Record.
    - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer of Record.
      - 1) Acceptance criteria for concrete strength shall be in accordance with ACI 301, section 1.6.6.3.
  12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- F. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of completion of floor finishing and promptly report test results to Architect.

### 3.16 PROTECTION

- A. Protect concrete surfaces as follows:
1. Protect from petroleum stains.
  2. Diaper hydraulic equipment used over concrete surfaces.
  3. Prohibit vehicles from interior concrete slabs.
  4. Prohibit use of pipe-cutting machinery over concrete surfaces.
  5. Prohibit placement of steel items on concrete surfaces.
  6. Prohibit use of acids or acidic detergents over concrete surfaces.
  7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00



# Division 04 - Masonry



## SECTION 04 20 00 - UNIT MASONRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
  1. Concrete masonry units.
  2. Decorative concrete masonry units.
  3. Mortar and grout.
  4. Reinforcing steel.
  5. Masonry joint reinforcement.
  6. Ties and anchors.
  7. Embedded flashing.
  8. Miscellaneous masonry accessories.
  9. Masonry-cell insulation.
  10. Cavity-wall insulation.
- B. Products installed, but not furnished, under this Section include the following:
  1. Steel lintels and shelf angles for unit masonry, furnished under Division 05.
  2. Manufactured reglets in masonry joints for metal flashing, furnished under Division 07.
  3. Hollow-metal frames in unit masonry openings, furnished under Division 08.

#### 1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Product Data: For each different masonry unit, accessory, and other manufactured product specified.
- B. Shop Drawings: Show fabrication and installation details for the following:
  1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
  2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection: For the following:
  1. Unit masonry Samples in small-scale form showing the full range of colors and textures available for each different exposed masonry unit required.
  2. Colored mortar Samples showing the full range of colors available.
- D. Samples for Verification: For the following:
  1. Full-size units for each different exposed masonry unit required, showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.

2. Colored mortar Samples for each color required, showing the full range of colors expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on Project.
  3. Accessories embedded in the masonry.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
- F. Material Test Reports: From a qualified testing agency indicating and interpreting test results of the following for compliance with requirements indicated:
1. Each type of masonry unit required.
    - a. Include size-variation data for brick, verifying that actual range of sizes falls within specified tolerances.
    - b. Include test results, measurements, and calculations establishing net-area compressive strength of masonry units.
  2. Mortar complying with ASTM C 270
  3. Grout mixes complying with compressive strength requirements of ASTM C 476. Include description of type and proportions of grout ingredients.
- G. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
1. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
  2. Each material and grade indicated for reinforcing bars.
  3. Each type and size of joint reinforcement.
  4. Each type and size of anchor, tie, and metal accessory.
- H. Job Site Testing: The general contractor shall test three masonry units from two random loads of masonry block with an independent testing facility for compliance of the aggregate materials and mix.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- C. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- D. Sample Panels: Before installing unit masonry, build sample panels, using materials indicated for the completed Work, to verify selections made under sample Submittals and to demonstrate aesthetic effects. Build sample panels for each type of exposed unit masonry assembly in sizes approximately **72 inches** long by **48 inches** high by full thickness (or as indicated on drawings).
1. Locate panels in the locations indicated or, if not indicated, as directed by Architect.
  2. Clean exposed faces of panels with masonry cleaner indicated.

3. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
  4. Protect approved sample panels from the elements with weather-resistant membrane.
  5. Maintain sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
    - a. Note approved sample panels not meeting the above requirements shall be removed and built back to quality standards.
    - b. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels, unless such deviations are specifically approved by Architect in writing.
  7. Demolish and remove sample panels when directed.
- E. If control joints are not shown on drawings, it is the Contractor's responsibility to notify the Architect for placement.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry. Exposed colored masonry block and brick shall be stored on wooden pallets.
- B. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- C. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Protect exposed exterior finished materials from mud and dirt splatters with sand or straw.
- B. Do not apply uniform floor or roof loads for at least 24 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
  2. Protect sills, ledges, and projections from mortar droppings.
  3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
1. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

## PART 2 - PRODUCTS

### 2.1 CONCRETE MASONRY UNITS

- A. General: Provide shapes indicated and as follows:
1. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
  2. Provide square-edged units for outside corners, unless indicated as bullnose or other special shape.
- B. Concrete Masonry Units: ASTM C 90 (latest revision) and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2000 psi.
  2. Weight Classification: Light weight meeting max. 150 cpf density.
  3. Size (Width): Manufactured to the following dimensions:
    - a. 4 inches nominal; 3-5/8 inches actual.
    - b. 6 inches nominal; 5-5/8 inches actual.
    - c. 8 inches nominal; 7-5/8 inches actual.
    - d. 12 inches nominal; 11-5/8 inches actual.
    - e. 16 inches nominal; 15-5/8 inches actual.
  4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
  5. Units shall be free of organic impurities that will cause rusting, staining or pop outs, and shall contain no combustible matter. The use of coal cinder aggregate/bottom ash, or similar waste products WILL NOT be allowed.
  6. Job Site Testing: Per the request of the Architect, a random sample of the concrete masonry units may be taken from the job site to be tested for compliance with the specifications.
  7. All lightweight aggregates used in the concrete units shall be expanded shale, clay or slate stalite materials, produced by the rotary Kiln process, shall conform to ASTM C331, C330 and shall be graded to assure constant texture. Aggregates shall have a maximum absorption rate of 10%.
- C. Decorative Concrete Masonry Units: ASTM C 90 (latest revision) and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 5000 psi or greater.
  2. Weight Classification: Normal weight.

3. Size: Manufactured to dimensions indicated for non-decorative units or as indicated on drawings.
  4. Exposed faces of decorative units: description matching color, pattern, and texture of Architect's samples.
    - a. Normal-weight aggregate, color integral, split-face finish integral color with white cement (requires white cement, pigment and white sand).
      - 1) Adams Products Company – Echelon Standard Masonry Split Face
      - 2) Johnson Concrete Company – Prestige Masonry Architectural Split Face
      - 3) Piedmont Block-Architectural Series
      - 4) Cemex
    - b. Substitutions from alternate manufactures shall be submitted 15-days before bid date.
- D. Integral Water Repellent: Provide all decorative concrete masonry units made with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of the test specimen. This admixture shall be W.R. Grace DRY BLOCK, ACM Chemistries RainBloc, BASF Rheopel Plus or approved substitute.

## 2.2 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- D. Pigmented Mortar: Colored cement or cement-lime formulation
  1. Color: Color as selected by Architect from manufacturer's full range of colors or as indicated on drawings.
  2. Location of Pigmented Mortar indicated below:
    - a. Decorative Concrete Masonry Units
      - 1) Normal-weight aggregate, split-face finish
  3. Products:
    - a. Colored Masonry Cement (ASTM-C 91):
      - 1) Available Manufacturers:
        - a) Cemex S.A.B. de C.V.; Richcolor Masonry Cement.
        - b) Holcim (US) Inc.; Rainbow Mortamix Custom Color Masonry Cement.
        - c) Argos US; Custom Color Masonry Cement.
        - d) Giant Cement Company
        - e) Or approved equal. (submit 10-days prior to bid date)
    - b. Colored Portland Cement-Lime Mix: (Type – S)
      - 1) Available Manufacturers:
        - a) Holcim - Rainbow CLS.
        - b) Argos US; Centurion Colorbond PL.
        - c) Lehigh Portland Cement Co.; Lehigh Custom Color Portland/Lime.
        - d) Or approved equal. (submit 10-days prior to bid date)

- E. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  - 1. Colored-Mortar Aggregates: Natural white sand or crushed stone to produce required mortar color.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
- H. Water: Potable (low chlorine content).

### 2.3 REINFORCING STEEL

- A. Uncoated Steel Reinforcing Bars: ASTM A 615, Grade 60.

### 2.4 MASONRY JOINT REINFORCEMENT

- A. General: ASTM A 951 and as follows:
  - 1. Hot-dip galvanized, carbon-steel wire for both interior and exterior walls.
  - 2. Wire Size for Side Rods: 9 gage U.N.O.
  - 3. Wire Size for Cross Rods: 9 gage U.N.O.
  - 4. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units where indicated.
- B. For single-wythe masonry, provide either ladder or truss type with single pair of side rods and cross rods spaced not more than 16 inches o.c.
- C. For multiwythe masonry, provide types as follows:
  - 1. Ladder type with perpendicular cross rods spaced not more than 16 inches o.c. and 1 side rod for each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod for each wythe of masonry 4 inches or less in width.
  - 2. Adjustable (2-piece) type with single pair of side rods and cross ties spaced not more than 16 inches o.c. and with separate adjustable veneer ties engaging the cross ties. Cross ties are either U-shaped with eyes or rectangular. Space side rods for embedment within each face shell of backup wythe and size adjustable ties to extend at least halfway through outer wythe but with at least 5/8-inch cover on outside face.
    - a. Use where indicated and where horizontal joints of facing wythe do not align with those of backup wythe.

### 2.5 TIES AND ANCHORS, GENERAL

- A. General: Provide ties and anchors, specified in subsequent articles, made from materials that comply with this Article, unless otherwise indicated.
- B. Hot-Dip Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60, commercial-quality, steel sheet zinc coated by hot-dip process on continuous lines before fabrication.



- D. Steel Sheet, Galvanized after Fabrication: ASTM A 366/A 366M cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153.
- E. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

## 2.6 BENT WIRE TIES

- A. General: Rectangular units with closed ends and not less than 4 inches wide. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
  - 1. Where coursing between wythes does not align, use adjustable ties composed of 2 parts; 1 with pintles, the other with eyes; with maximum misalignment of 1-1/4 inches.
- B. Wire: Fabricate from hot-dip galvanized steel wire.

## 2.7 ADJUSTABLE ANCHORS FOR CONNECTING TO STEEL FRAME

- A. General: Provide two-piece hot-dip galvanized steel assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
  - 1. For anchorage to steel framing: provide manufacturer's standard anchors with crimped 1/4"-inch-diameter wire anchor section for welding to steel and triangular-shaped section 0.1875-inch diameter sized to extend within 1 inch of masonry face

## 2.8 RIGID ANCHORS

- A. General: Fabricate from steel bars as follows:
  - 1. 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins.
  - 2. Finish: Hot-dip galvanized to comply with ASTM A 153.

## 2.9 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:
  - 1. Headed bolts.
  - 2. Nonheaded bolts, bent or straight in manner indicated.

## 2.10 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with Division 07 Section "Sheet Metal Flashing and Trim."
  - 1. Metal Drip Edges: Fabricate from stainless steel, prefinished aluminum or as indicated on Drawings. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees.
  - 2. Metal Flashing Terminations: Fabricate from stainless steel, prefinished aluminum or as indicated on Drawings. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.

- B. For flashing partly exposed to the exterior, use metal flashing specified above. For flashing not exposed to the exterior, use one of the following flexible flashings, unless otherwise indicated:
1. Copper Fabric Flashing (Asphalt Free): Manufacturer's standard laminated flashing consisting of 5-oz./sq. ft. sheet copper bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry or cut flush with face of joint.
  2. Stainless Steel Fabric Flashing (Asphalt Free): 304 Stainless steel core, ASTM A167, with polymer fabric laminated to one stainless steel face with non-asphalt adhesive and polyether sealant.
    - a. Products of manufacturers listed below meeting indicated standards and specified manufacturer's product data characteristics, are acceptable for use, subject to compliance with specified requirements.
      - 1) York Manufacturing, Inc.; Multi-Flash SS
      - 2) STS Coatings, Inc.; Gorilla Flash Stainless Fabric
      - 3) Illinois Products, Inc.; IPCO Stainless Steel Fabric Flashing
      - 4) TK Products, Inc.; TK TWF
      - 5) GE: Elemax SS Flashing
- C. Solder and Sealants for Sheet Metal Flashings: As recommended by flashing manufacturer and compatible with insulations and other substrates.
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer and compatible with insulations and other substrates.
- E. Provide preformed corners and end-dams. Use minimum 26 gauge stainless steel pre-manufactured corners. Adhere and seal to flashing per manufacturers recommendations.
- F. Termination bar: Rigid PVC or stainless steel termination bar with sealant catch lip.
- 2.11 MISCELLANEOUS MASONRY ACCESSORIES
- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products: Use the following, unless otherwise indicated:
1. Mesh Weep/Vent: Provide free-draining mesh, made from polyethylene strands. At all flashing conditions, provide weep vents that are full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard to match mortar.
- E. Cavity Drainage Material: 1-inch thick, reticulated, non-absorbent mesh, made from polyethylene strands and shaped to maintain drainage at weep holes without being clogged by mortar droppings.
1. Product: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following products:

- a. Advanced Building Products Inc.; Mortar Break
- b. Archovations, Inc.; CavClear Masonry Mat
- c. Dayton Superior Construction, Dur-O-Wal Division; Polytite MortarStop
- d. Mortar Net USA, Ltd.; Mortar Net

## 2.12 MASONRY CELL INSULATION

- A. Loose-Granular Fill Insulation: Perlite complying with ASTM C 549, Type II (surface treated for water repellency and limited moisture absorption) or Type IV (surface treated for water repellency and to limit dust generation).
- B. Molded-Polystyrene Insulation Units: Rigid, cellular thermal insulation formed by the expansion of polystyrene-resin beads or granules in a closed mold to comply with ASTM C 578, Type I. Provide specially shaped units designed for installing in cores of masonry units.
- C. Foamed-in-Place Insulation: Install Core-Fill 500 as manufactured by Tailored Chemical Products. Install per manufacturer's recommendations. Product shall meet ASTM-E119, E84 and E136.

## 2.13 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of **1/2-cup** dry measure tetrasodium polyphosphate and **1/2-cup** dry measure laundry detergent dissolved in **1 gal.** of water.
- B. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  1. For masonry not subject to metallic oxidation stains, use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.
  2. For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids, and special inhibitors.

## 2.14 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  1. Do not use calcium chloride in mortar or grout.
  2. Use integral water repellent for color integral CMU as noted in 2.1-D previously.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
  1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) at time of placement that will completely fill spaces intended to receive grout.
  2. Use fine grout in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
  3. Use coarse grout in grout spaces 2 inches or more in horizontal dimension, unless otherwise indicated.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
- B. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

## 3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this Section and in other Sections of the Specifications.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.
- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
  - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

## 3.3 CONSTRUCTION TOLERANCES

- A. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
- B. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than **1/4 inch in 20 feet**, nor **1/2 inch** maximum.
- C. For vertical alignment of exposed head joints, do not vary from plumb by more than **1/4 inch in 10 feet**, nor **1/2 inch** maximum.
- D. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than **1/4 inch in 20 feet**, nor **1/2 inch** maximum.
- E. For exposed bed joints, do not vary from thickness indicated by more than plus or minus **1/8 inch**, with a maximum thickness limited to **1/2 inch**. Do not vary from bed-joint thickness of adjacent courses by more than **1/8 inch**.
- F. For exposed head joints, do not vary from thickness indicated by more than plus or minus **1/8 inch**. Do not vary from adjacent bed-joint and head-joint thicknesses by more than **1/8 inch**.

## 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
  - 1. One-half running bond with vertical joint in each course centered on units in courses above and below.
  - 2. Or as indicated on Drawings.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: In each course, rack back one-half-unit length for one-half running bond or one-third-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- F. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.
- G. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. At fire-rated partitions, install firestopping in joint between top of partition and underside of structure above to comply with Division 07.
- I. Cover all masonry walls at the end of each work day per TMS 402.

## 3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow masonry units as follows:
  - 1. With full mortar coverage on horizontal and vertical face shells.
  - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
  - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
- B. Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
  - 1. At cavity walls, bevel beds away from cavity, to minimize mortar protrusions into cavity. As work progresses, trowel mortar fins protruding into cavity flat against the cavity face of the brick.

- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

### 3.6 BONDING OF MULTI-WYTHE MASONRY

- A. Use continuous horizontal-joint reinforcement installed in horizontal mortar joints to bond wythes together. Stagger ties in alternate courses.
- B. Use bonding system indicated on Drawings.
- C. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
  - 1. Provide continuity with masonry joint reinforcement at corners by using prefabricated "L" units as well as masonry bonding.
- D. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
  - 1. Provide individual metal ties not more than 16 inches o.c.
  - 2. Provide continuity with masonry joint reinforcement by using prefabricated "T" units.
  - 3. Provide rigid metal anchors not more than 24 inches o.c. If used with hollow masonry units, embed ends in mortar-filled cores.

### 3.7 CAVITIES

- A. **Keep cavities clean of mortar droppings and other materials during construction.**
  - 1. Use wood strips temporarily placed in cavity to collect mortar droppings. As work progresses, remove strips, clean off mortar droppings, and replace in cavity.
- B. Coat cavity face of backup wythe to comply with Division 07 Section "Fluid Applied Air Barriers"
- C. Installing Cavity-Wall Insulation: Place small dabs of adhesive spaced approximately **12 inches** o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
  - 1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

### 3.8 MASONRY-CELL INSULATION

- A. Pour granular insulation into cavities to fill void spaces. Maintain inspection ports to show presence of insulation at extremities of each pour area. Close the ports after filling has been confirmed. Limit the fall of insulation to 1 story in height, but not more than **20 feet**.
- B. Install molded-polystyrene insulation units into masonry unit cells before laying units.
- C. Install foamed-in-place masonry per manufacturers recommendations. Patch holes as recommended by manufacturer.

## 3.9 HORIZONTAL MASONRY JOINT REINFORCEMENT

- A. General: Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 16 inches. This reinforcement is in addition to continuous reinforcement.
1. Space reinforcement not more than 16 inches o.c.
  2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
  3. Provide reinforcement not more than 8 inches above and below wall openings and extending 32 inches beyond openings.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

## 3.10 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
1. Provide an open space not less than **1 inch** in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
  2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.
  3. Space anchors as indicated, but not more than **24 inches** o.c. vertically and **36 inches** o.c. horizontally.

## 3.11 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement. If joints are not indicated, install them as per National Concrete Masonry Association (NCMA) and Brick Industry Association (BIA) recommendations.
- B. Form control joints in concrete masonry as follows:
1. Install preformed control-joint gaskets designed to fit standard sash block.
  2. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake joint.
- C. Form expansion joints in brick made from clay or shale as follows:
1. Where indicated on drawings, build flanges of metal expansion strips into masonry. Lap each joint **4 inches** in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints, if any.
  2. Form open joint of width indicated, but not less than **3/8 inch** for installation of sealant and backer rod specified in Division 07 Section "Sealants." Keep joint free and clear of mortar.
- D. Build in horizontal, pressure-relieving joints where indicated; construct joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Sealants."

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry veneer and attached to structure behind masonry veneer.

E. See quality assurance, 1.5-E, control joint placement.

### 3.12 LINTELS

A. Install steel lintels where indicated.

B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

### 3.13 FLASHING, WEEP HOLES, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and apply sealant under flashing. Cover flashing with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

C. Install flashing as follows:

1. At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of **8 inches**, and through inner wythe to within **1/2 inch** of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately **2 inches**, unless otherwise indicated.
2. At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least **8 inches**, and behind air-infiltration barrier or building paper. Terminate flashing with a non-corrosive termination bar per manufacturer's recommendations.
3. At lintels and shelf angles, extend flashing a minimum of **4 inches** into masonry at each end. At heads and sills, extend flashing **4 inches** at ends and seal into preformed end-dams per manufacturer's recommendations.
4. Cut flashing off flush with face of wall after masonry wall construction is completed.

D. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

1. Use specified weep/vent products to form weep holes.
2. Space weep holes **24 inches** o.c., unless otherwise indicated.

E. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

F. Install preformed flashing corners per manufacturer's recommendations.

G. Install all laps of flashing with minimum 6" lap. Adhere/seal laps per manufacturer's recommendations.

### 3.14 REINFORCED UNIT MASONRY INSTALLATION



- A. Temporary Formwork and Shores: Construct formwork and shores to support reinforced masonry elements during construction.
  - 1. Construct formwork to conform to shape, line, and dimensions shown. Make it sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
  - 1. Comply with requirements of ACI 530.1/ASCE 6/TM for cleanouts and for grout placement, including minimum grout space and maximum pour height

### 3.15 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
  - 5. Clean brick by the bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20, using job-mixed detergent solution.
  - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

### 3.16 MASONRY WASTE DISPOSAL

- A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Disposal as Fill Material: Dispose of clean masonry waste, including broken masonry units, waste mortar, and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

1. Crush masonry waste to less than 4 inches in each dimension.
  2. Mix masonry waste with at least two parts of fill material for each part of masonry waste.
  3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of waste off Owner's property.

END OF SECTION 04 20 00

# Division 05 - Metals



## SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

##### A. Section Includes:

1. Structural steel.
2. Shear stud connectors.
3. Shrinkage-resistant grout.

##### B. Related Requirements:

1. Section 05 12 13 "Architecturally Exposed Structural Steel Framing" for additional requirements for architecturally exposed structural steel.
2. Section 05 31 00 "Steel Decking" for field installation of shear stud connectors through deck.
3. Section 05 50 00 "Metal Fabrications" for miscellaneous steel fabrications and other steel items not defined as structural steel.
4. Section 09 96 00 "High-Performance Coatings" for painting requirements.

#### 1.3 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

#### 1.4 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

#### 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

## 1.6 ACTION SUBMITTALS

## A. Product Data:

1. Structural-steel materials.
2. High-strength, bolt-nut-washer assemblies.
3. Shear stud connectors.
4. Anchor rods.
5. Threaded rods.
6. Shop primer.
7. Shrinkage-resistant grout.

## B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.

## C. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

## D. Delegated-Design Submittal: For structural-steel connections indicated on Drawings to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.7 INFORMATIONAL SUBMITTALS

## A. Qualification Data: For fabricator.

## B. Welding certificates.

## C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

## D. Mill test reports for structural-steel materials, including chemical and physical properties.

## E. Product Test Reports: For the following:

1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
2. Direct-tension indicators.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shear stud connectors.

## 1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: The Fabricator must meet at least one of the two following requirements.
1. A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).
  2. A qualified fabricator with a minimum of 5 years' experience in fabricating structural steel similar to that indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the work. The fabricator shall retain, at no cost to the owner, a structural engineer to oversee an inspection process as directed by the Engineer of Record. The structural engineer shall submit a summary letter and all supporting documentation to the Engineer of Record for approval. The letter shall be signed and sealed by an engineering licensed in the state where the project is located, and must be approved by the Engineer of Record prior to fabrication.
- B. Installer Qualifications: The Installer must meet at least one of the two following requirements.
1. A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
  2. A qualified and experienced installer who has completed structural steel work similar in material, design, and extent to that indicated for the project, and with a record of successful in-service performance for a minimum of 5 years.
- C. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  2. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
  3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Comply with applicable provisions of the following specifications and documents:
  - 1. ANSI/AISC 303.
  - 2. ANSI/AISC 360.
  - 3. RCSC's "Specification for Structural Joints Using High-Strength Bolts."
- B. Connection Design Information:
  - 1. Design connections and final configuration of member reinforcement at connections in accordance with ANSI/AISC 303 by fabricator's qualified professional engineer.
    - a. Use Load and Resistance Factor Design; data are given at factored-load level.
- C. Moment Connections: Type PR, partially restrained.
- D. Construction: As indicated.

## 2.2 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A992/A992M.
- B. Channels, Angles: ASTM A36/A36M.
- C. Plate and Bar: ASTM A36/A36M, and ASTM A572/A572M, Grade 50 as indicated.
- D. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B structural tubing.
- E. Steel Pipe: ASTM A500/A500M, Grade B.
  - 1. Weight Class: Standard, or as indicated.
  - 2. Finish: Black except where indicated to be galvanized.
- F. Welding Electrodes: Comply with AWS requirements.

## 2.3 BOLTS AND CONNECTORS

- A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
- B. High-Strength A490 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A490, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.



- C. Shear Stud Connectors: ASTM A108, AISI C-1015 through C-1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

## 2.4 RODS

- A. Unheaded Anchor Rods: ASTM F1554, Grade 36, or Grades 55 and 105 as indicated on the Drawings.

1. Configuration: Straight.
2. Nuts: ASTM A563 heavy-hex carbon steel.
3. Plate Washers: ASTM A36/A36M carbon steel.
4. Washers: ASTM F436, Type 1, hardened carbon steel.
5. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

- B. Headed Anchor Rods: ASTM F1554, Grade 36, or Grades 55 and 105 as indicated on the Drawings.

1. Configuration: Straight.
2. Nuts: ASTM A563 heavy-hex carbon steel.
3. Plate Washers: ASTM A36/A36M carbon steel.
4. Washers: ASTM F436, Type 1, hardened carbon steel.
5. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

- C. Threaded Rods: ASTM A36/A36M.

1. Nuts: ASTM A 63 heavy-hex carbon steel.
2. Washers: ASTM F436, Type 1, hardened carbon steel.
3. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

## 2.5 PRIMER

- A. Steel Primer:

1. Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

- B. Galvanized-Steel Primer: MPI#134.

1. Etching Cleaner: MPI#25, for galvanized steel.
2. Galvanizing Repair Paint: ASTM A780/A780M.

## 2.6 SHRINKAGE-RESISTANT GROUT

- A. Non-metallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, non-metallic aggregate grout, non-corrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

## 2.7 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.
  - 1. Camber structural-steel members where indicated.
  - 2. Fabricate beams with rolling camber up.
  - 3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.
  - 4. Mark and match-mark materials for field assembly.
  - 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
  - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted in accordance with SSPC-SP 1.
- F. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using automatic end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.
- G. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-opening framing to be attached to structural-steel frame. Straighten as required to provide uniform, square, and true members in completed wall framing. Build up welded framing, weld exposed joints continuously, and grind smooth.
- H. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
  - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
  - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
  - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.8 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

## 2.9 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
2. Galvanize items as indicated on the Drawings.

## 2.10 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
5. Galvanized surfaces.

- B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:

1. SSPC-SP 2.
2. SSPC-SP 3.

- C. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.
  - 1. Do not remove temporary shoring supporting composite deck construction and structural-steel framing until cast-in-place concrete has attained its design compressive strength.

### 3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.
- B. Base Plates, Bearing Plates, and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Weld plate washers to top of baseplate.
  - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  - 4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.
- C. Maintain erection tolerances of structural steel within ANSI/AISC 303.
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  - 1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.
  - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  - 2. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

### 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:
  - 1. Verify structural-steel materials and inspect steel frame joint details.
  - 2. Verify weld materials and inspect welds.
  - 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
  - 1. Bolted Connections: Inspect and test bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
  - 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.
    - a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
      - 1) Liquid Penetrant Inspection: ASTM E165/E165M.
      - 2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
      - 3) Ultrasonic Inspection: ASTM E164.
      - 4) Radiographic Inspection: ASTM E94/E94M.

### 3.6 PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing, and repair galvanizing to comply with ASTM A780/A780M.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 05 12 00

## SECTION 05 31 00 - STEEL DECKING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Composite floor deck.
- B. Related Requirements:
  - 1. Section 03 30 00 "Cast-in-Place Concrete" for normal-weight and lightweight structural concrete fill over steel deck.
  - 2. Section 05 12 00 "Structural Steel Framing" for shop- and field-welded shear connectors.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Sustainable Design Submittals:
  - 1. Product Data: For recycled content, indicating post-consumer and pre-consumer recycled content and cost.
- C. Shop Drawings:
  - 1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Product Certificates: For each type of steel deck.
- C. Product Test Reports: For tests performed by a qualified testing agency, indicating that each of the following complies with requirements:
  - 1. Power-actuated mechanical fasteners.

## 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."
- B. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- C. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

## 2.2 COMPOSITE FLOOR DECK

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Canam Steel Corporation; Canam Group, Inc.
  - 2. Cordeck.
  - 3. DACS, Inc.
  - 4. Epic Metals Corporation.
  - 5. Marlyn Steel Decks, Inc.
  - 6. New Millennium Building Systems, LLC.
  - 7. Nucor Corp.
  - 8. Roof Deck, Inc.
- B. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel



Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 50, G60 zinc coating.
2. Profile Depth: As indicated.
3. Design Uncoated-Steel Thickness: As indicated.
4. Span Condition: As indicated.

### 2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.
- G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.
- H. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.
- I. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.
- J. Galvanizing Repair Paint: ASTM A780/A780M.
- K. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

### 3.3 FLOOR DECK INSTALLATION

- A. Fasten floor deck panels to steel supporting members as indicated.
- B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports as indicated.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
  - 1. End Joints: Lapped or butted at Contractor's option.
- D. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.
- E. Floor Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Field welds will be subject to inspection.
- C. Prepare test and inspection reports.

3.5 PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

END OF SECTION 05 31 00



## SECTION 05 40 00 - COLD-FORMED METAL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Exterior non-load bearing wall framing.
2. Interior non-load bearing wall framing exceeding height limitations of standard, non-structural metal framing.
3. Soffit framing.

- B. Related Requirements:

1. Section 05 50 00 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.
2. Section 09 21 16.23 "Gypsum Board Shaft Wall Assemblies" for interior non-load bearing, metal-stud-framed, shaft-wall assemblies, with height limitations.
3. Section 09 22 16 "Non-Structural Metal Framing" for standard, interior non-load bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

- C. Delegated-Design Submittal: For cold-formed steel framing.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Welding certificates.
- C. Product Certificates: For each type of code-compliance certification for studs and tracks.
- D. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
  - 1. Steel sheet.
  - 2. Expansion anchors.
  - 3. Power-actuated anchors.
  - 4. Mechanical fasteners.
  - 5. Vertical deflection clips.
  - 6. Horizontal drift deflection clips
  - 7. Miscellaneous structural clips and accessories.
- E. Evaluation Reports: For non-standard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

## 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.
- B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- C. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association or the Steel Stud Manufacturers Association.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AllSteel & Gypsum Products, Inc.
  - 2. ClarkDietrich.
  - 3. Craco Manufacturing, Inc.

4. Custom Stud.
5. Formetal Co. Inc. (The).
6. Jaimes Industries.
7. MarinoWARE.
8. MBA Building Supplies.
9. MRI Steel Framing, LLC.
10. Nuconsteel, A Nucor Company.
11. Southeastern Stud & Components, Inc.
12. State Building Products, Inc.
13. Steel Construction Systems.
14. Steel Structural Systems.
15. Super Stud Building Products Inc.
16. Telling Industries.
17. The Steel Network, Inc.
18. United Steel Deck, Inc.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.
- B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
  1. Design Loads: As indicated on Drawings.
  2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Exterior Non-Load bearing Framing: Horizontal deflection of 1/240 of the wall height. Increase limit to 1/600 of the wall height at locations backing up brick façade.
    - b. Interior Non-Load bearing Framing: Horizontal deflection of 1/240 of the wall height under a horizontal load of 5 lbf/sq. ft.
  3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 80 deg F.
  4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
    - a. Upward and downward movement of 3/4 inch.
  5. Design exterior non-load bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- C. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:
  1. Wall Studs: AISI S211.
  2. Headers: AISI S212.

- D. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

### 2.3 COLD-FORMED STEEL FRAMING MATERIALS

- A. Steel Sheet: ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
  - 1. Grade: As required by structural performance.
  - 2. Coating: G60, A60, AZ50, or GF30.
- B. Steel Sheet for Vertical Deflection Clips: ASTM A653/A653M, structural steel, zinc coated, of grade and coating as follows:
  - 1. Grade: As required by structural performance.
  - 2. Coating: G60.

### 2.4 EXTERIOR NON-LOAD BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-5/8 inches.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-1/4 inches.
- C. Vertical Deflection Clips: Manufacturer's standard bypass or head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. AllSteel & Gypsum Products, Inc.
    - b. ClarkDietrich.
    - c. MarinoWARE.
    - d. Simpson Strong-Tie Co., Inc.
    - e. Steel Construction Systems.
    - f. The Steel Network, Inc.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with



flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch.
  2. Flange Width: 1 inch plus the design gap for one-story structures.
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

## 2.5 INTERIOR NON-LOAD BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0329 inch.
  2. Flange Width: 1-3/8 inches.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0329 inch.
  2. Flange Width: 1-1/4 inches.
- C. Vertical Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. AllSteel & Gypsum Products, Inc.
    - b. ClarkDietrich.
    - c. MarinoWARE.
    - d. Simpson Strong-Tie Co., Inc.
    - e. The Steel Network, Inc.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch.
  2. Flange Width: 1 inch plus the design gap for one-story structures.
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

## 2.6 SOFFIT FRAMING

- A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-5/8 inches, minimum.

## 2.7 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from ASTM A1003/A1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
  - 1. Supplementary framing.
  - 2. Bracing, bridging, and solid blocking.
  - 3. Web stiffeners.
  - 4. Anchor clips.
  - 5. End clips.
  - 6. Foundation clips.
  - 7. Gusset plates.
  - 8. Stud kickers and knee braces.
  - 9. Joist hangers and end closures.
  - 10. Hole-reinforcing plates.
  - 11. Backer plates.

## 2.8 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.
- B. Anchor Bolts: ASTM F1554, Grade 36, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A153/A153M, Class C.
- C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193, ICC-ES AC58, or ICC-ES AC308 as appropriate for the substrate.
  - 1. Uses: Securing cold-formed steel framing to structure.
  - 2. Type: Screw or adhesive anchor.
  - 3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5, unless otherwise indicated.
  - 4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.

- D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
  - 1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.
- F. Welding Electrodes: Comply with AWS standards.

## 2.9 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A780/A780M or SSPC-Paint 20.
- B. Non-metallic, Non-shrink Grout: Factory-packaged, non-metallic, non-corrosive, non-staining grout, complying with ASTM C1107/C1107M, and with a fluid consistency and 30-minute working time.
- C. Shims: Load bearing, high-density, multi-monomer, non-leaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.
- D. Sealer Gaskets: Closed-cell neoprene foam, 1/4-inch-thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

## 2.10 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  - 1. Fabricate framing assemblies using jigs or templates.
  - 2. Cut framing members by sawing or shearing; do not torch cut.
  - 3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.
  - 4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.
- C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.
- B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.
- C. Install load bearing shims or grout between the underside of load bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.
- D. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

#### 3.3 INSTALLATION, GENERAL

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
  1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.
- D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
  - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
  - b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

### 3.4 EXTERIOR NON-LOAD BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.
- B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
  1. Stud Spacing: As indicated on Drawings.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
  1. Install single deep-leg deflection tracks and anchor to building structure.
  2. Connect vertical deflection clips to bypassing studs and anchor to building structure.
  3. Connect drift clips to cold-formed steel framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
  1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.

2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
1. Install solid blocking at centers indicated on Shop Drawings.
- G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

### 3.5 INTERIOR NON-LOAD BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.
- B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
1. Stud Spacing: As indicated on Drawings.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Install single deep-leg deflection tracks and anchor to building structure.
  2. Connect vertical deflection clips to studs and anchor to building structure.
  3. Connect drift clips to cold-formed steel metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
  2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
1. Install solid blocking at centers indicated on Shop Drawings.

- G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

### 3.6 ERECTION TOLERANCES

- A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

### 3.7 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.8 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 40 00





## SECTION 05 50 00 - METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Loose bearing and leveling plates.
  - 2. Loose steel lintels.
  - 3. Miscellaneous framing and supports.
  - 4. Metal edgings.
  - 5. Miscellaneous metal trim.
- B. Related Sections include the following:
  - 1. Division 05 Section "Structural Steel Framing" for structural-steel framing system components.
  - 2. Division 06 Section "General Carpentry" for metal framing anchors and other rough hardware.

#### 1.3 SUBMITTALS

- A. Product Data: For the following:
  - 1. Nonslip-aggregate surface finishes.
  - 2. Grout.
- B. Shop Drawings: Detail fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
  - 1. Provide templates for anchors and bolts specified for installation under other Sections.
- C. Samples for Verification: For each type and finish of extruded nosing and tread.
- D. Welding Certificates: Copies of certificates for welding procedures and personnel.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."
  - 2. AWS D1.2, "Structural Welding Code--Aluminum."
  - 3. AWS D1.3, "Structural Welding Code--Sheet Steel."
  - 4. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

## 1.5 PROJECT CONDITIONS

- A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.6 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

### 2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- C. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
- D. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.
- E. Steel Pipe: ASTM A500/A500M, Grade B, standard weight, unless another weight is indicated or required by structural loads.
- F. Slotted Channel Framing: Cold-formed metal channels with flange edges returned toward web and with 9/16-inch wide slotted holes in webs at 2 inches on center.
  - 1. Width of Channels: 1-5/8 inches.

2. Depth of Channels: As indicated.
3. Metal and Thickness: Galvanized steel complying with ASTM A 653/A 653M, structural quality, Grade 50 for, 0.108-inch, 0.079-inch or 0.064-inch nominal thickness, and Grade 33 for 0.054-inch, and 0.033-inch, with G60 coating.
4. Metal and Thickness: Cold rolled steel complying with ASTM A 1008/A1008M, Grade 33; 0.0966-inch, 0.0677-inch or 0.0528-inch minimum thickness (as required for load imposed).
5. Finish: Unfinished where not exposed.
6. Finish: Rust-inhibitive, baked-on, acrylic enamel finish where exposed to view or to the exterior.

G. Malleable-Iron Castings: ASTM A 47, Grade 32510.

H. Gray-Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

I. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

J. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

## 2.3 ALUMINUM

A. Aluminum Extrusions: ASTM B 221, alloy 6063-T6.

B. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, alloy 6061-T6.

## 2.4 PAINT

A. Shop Primers: Provide primers that comply with Division 9 Section "Painting."

B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.5 FASTENERS

A. General: Provide Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

- C. Anchor Bolts: ASTM F 1554, Grade 36.
- D. Machine Screws: ASME B18.6.3.
- E. Lag Bolts: ASME B18.2.1.
- F. Wood Screws: Flat head, carbon steel, ASME B18.6.1.
- G. Plain Washers: Round, carbon steel, ASME B18.22.1.
- H. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.1.
- I. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
- J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as needed.

## 2.6 GROUT

- A. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

- F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- G. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.
- H. Allow for thermal movement resulting from the maximum change in ambient and surface temperatures (temperature range) by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and night-time sky heat loss.
- I. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- J. Remove sharp or rough areas on exposed traffic surfaces.
- K. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

## 2.8 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates after fabrication.

## 2.9 LOOSE STEEL LINTELS

- A. Fabricate loose structural-steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated.
- C. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches, unless otherwise indicated.
- D. Shop prime loose steel lintels located in exterior walls.

## 2.10 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from structural-steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors 1-1/4 inches wide by 1/4 inch thick by 8 inches long at 24 inches on center, unless otherwise indicated.

3. Furnish inserts if units must be installed after concrete is placed.

C. Galvanize miscellaneous framing and supports where indicated.

#### 2.11 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from structural-steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 6 inches from each end, 6 inches from corners, and 24 inches o.c., unless otherwise indicated.

C. Galvanize miscellaneous steel trim where indicated on drawings.

#### 2.12 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

#### 2.13 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123, for galvanizing steel and iron products.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

#### 2.14 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

### PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- E. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

### 3.2 SETTING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
  - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
  - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### 3.3 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings, if any.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
  - 1. Where grout space under bearing plates is indicated at girders supported on concrete or masonry, install as specified above for setting and grouting bearing and leveling plates.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified above for setting and grouting bearing and leveling plates.
  - 1. Do not grout baseplates of columns supporting steel girders until girders are installed and leveled.

#### 3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 Section "Painting."
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 50 00



# Division 06 – Wood, Plastics, and Composites



## SECTION 06 20 00 - GENERAL CARPENTRY

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to complete the general carpentry work, miscellaneous equipment and material installation.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
  - 1. Include data for wood-preserved and fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that the treated materials comply with requirements.

#### 1.3 QUALITY ASSURANCE:

- A. Lumber standards: Comply with DOC PS 20 and with applicable rules of the respective agencies for species and products specified.
- B. Plywood product standards: Comply with DOC PS 1 (ANSI A199.1) or, for products not manufactured under DOC PS 1 provisions, with applicable APA Performance Standard for type of panel indicated. Reference DOC PS 2 for OSB.

#### 1.4 PRODUCT HANDLING:

- A. Do not deliver shop fabricated carpentry items until site conditions are adequate to receive the work. Protect items from weather while in transit.
- B. Store indoors, in ventilated area with a constant, minimum temperature of 60 degrees F, maximum humidity of 25 to 55 percent.

### PART 2 - PRODUCTS

#### 2.1 LUMBER:

- A. Dimensions: Conform to standards established by the American Lumber Standards Committee.
- B. Moisture content: Unseasoned or 19% maximum at the time of permanent closing in of the structure.
- C. Surfacing: S4S.
- D. Miscellaneous lumber: Provide wood for support or attachment of other work including, but not limited to, cant strips, bucks, nailers, plates, blocking, bracing, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown. Shall be #2, GM, SYP, KDAT (Kiln Dried After Treatment).

#### 2.2 PLYWOOD - GENERAL:

- A. Identify each panel with the appropriate grade APA trademark and shall meet the requirements of the latest edition of U.S. Product Standard PSI or one of APA's Performance Standards.
- B. All plywood which has an edge or surface permanently exposed to the weather shall be classed Exterior.
- C. Panel thickness, grade, and Group or Identification Index shall be at least equal to that shown on the Drawings. Installation shall be in accordance with the APA recommendations.

### 2.3 WOOD TREATMENT - PRESERVATIVE:

- A. Lumber or plywood shall be preservative treated in the following instances.
  - 1. Whenever wood is placed in the ground;
  - 2. Whenever wood is placed in water;
  - 3. Whenever wood comes in contact with masonry or concrete;
  - 4. Wherever wood is exposed to wetting and corrosive environments;
  - 5. Whenever wood would be susceptible to decay organisms or insects.
- B. Comply with applicable requirements of AWWA Standards U1. Mark each treated item with the AWWA Quality Mark Requirements.
- C. Water-borne preservatives shall comply with AWWA T1 applicable. After treatment, kiln-dry to a maximum moisture content of 15%.
- D. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

### 2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Comply with performance requirements in AWWA U1.
  - 1. Where indicated, use type USFB for exterior locations.
  - 2. Where indicated, use type USFB for interior locations.
- B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Application: Treat items where indicated on Drawings.

### 2.6 FASTENERS AND ANCHORAGE:

- A. Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommending nails.
- B. Where rough carpentry work is exposed to weather, in ground contact, or in area of high humidity, provide fasteners and anchorages with hot-dip zinc coating (ASTM A 153).

## PART 3 - EXECUTION

## 3.1 GENERAL:

- A. Discard units of material with defects, which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Set carpentry work accurately to required levels and lines, with members plumb, true and accurately cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.
- D. Use common wire nails, except as otherwise noted. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

## 3.2 WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:

- A. Provide for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Provide permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

END OF SECTION 06 20 00



## SECTION 06 22 00 – MILLWORK

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment and services required to furnish and install the millwork.

#### 1.2 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, the latest edition “Architectural Woodwork Standards” of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of these Contract Documents. Any reference to “premium”, “custom”, or “economy” shall be defined in the latest edition of AWI “Architectural Woodwork Standards”.

#### 1.3 SUBMITTALS:

- A. Prior to fabrication, submit to the Architect for review the following:
  - 1. Shop drawings that at a minimum shall show the following:
    - a. All materials (solid wood, plywood, fiberwood board, plastic laminate, solid surface, and hardware).
    - b. All thicknesses and dimensions.
    - c. Specie, grade and cut of woods and veneers.
    - d. Jointing and bolting.
    - e. The name of the manufacturer and the model number of all factory fabricated items.
    - f. Full size details drawn in related and dimensioned positions to facilitate checking of intersecting and string dimensions.
    - g. Clear description of work to be done in the shop and work to be done in the field.
  - 2. Manufacturer’s literature of specialty items not manufactured by the architectural woodworker.
  - 3. Physical samples:
    - a. Plastic laminate in all colors and patterns for the Architect’s selection.
    - b. Upon request, provide one unit of each type and finish of hardware
- B. Certification: Submit copies of certificate signed by woodwork shop certifying that millwork complies with quality grades and other requirements indicated. Form of certificate shall be approved by the Architect.

#### 1.4 PRODUCT HANDLING:

- A. Millwork shall not be delivered until the building and storage areas are sufficiently conditioned so that the millwork will not be damaged by excessive changes in moisture content.

### PART 2 - PRODUCTS

#### 2.1 CASEWORK, SHELVES AND COUNTERTOPS - PLASTIC LAMINATE FINISH:

- A. AWI quality grade: Custom
  - 1. Basis of Design (PL-1): Manufacturer: Wilsonart, Style: Crisp Linen 4942-98, fine velvet finish.
  - 2. Basis of Design (PL-2): Manufacturer: Wilsonart, Style: Walnut Heights 7965K-12, soft grain finish.
  - 3. Basis of Design (PL-3): Manufacturer: Wilsonart, Style: Dove Grey D92-60, matte finish.

4. Acceptable Manufacturers: Must match "Basis of Design" in color and pattern.
    - a. Pionite
    - b. Nevamar
    - c. Arborite
  5. See A700 Room Finish Schedule and series A900 casework elevation and section drawings for locations.
- B. Exposed surfaces – general purpose plastic laminate: 0.048 inches (1.2mm) nominal approximately 1/16" thick high-pressure plastic laminate; Vertical Surface Laminate Product 0.028 inch (0.7 mm) nominal and High Definition Laminate 0.039 inch (1.0 mm) nominal as required by AWI quality grade and conforming to NEMA LD 3, Grade HGS, VGS, VGP & HGP and ISO 4586, Grade HGS, VGS, VGP & HGP. Abrasion Class I.
- C. All plastic laminate countertops in which sinks occur shall have a core of exterior grade hardwood faced plywood.
- D. Casework body members (ends, divisions, fixed shelves, bottoms, tops, face frames, bases, rails, toe kicks, backs, drawer sides, drawer bottoms) to be made of cabinet grade plywood per AWI standards.
- E. Drawer fronts and cabinet doors with dimensions up to 30" width x 80" height shall be constructed from 3/4" minimum MDF or panel product.
- F. **NO PARTICLE BOARD IS ALLOWED ON SITE.**
- G. Provide all vertical and horizontal filler material required for a complete installation
- H. Edge banding shall be HPDL or .03 mm flat PVC color to coordinate with face laminate.
- I. Provide laminate on toe kicks that matches the base cabinet laminate.
- J. Grain pattern of laminate shall be in the same direction on all components, doors face, cabinet frame, drawer face, toe kick.
- 2.2 SOLID SURFACE COUNTER & WINDOW SILL: (SSF)

- A. Non-porous solid surface 1/2" thickness unless otherwise noted on drawings.
  1. Basis of Design: (SSF-1) Manuf.: Wilsonart, Color: 9204CE Morning Ice.
    - a. Finish: Matte
  2. Basis of Design: (SSF-2) Manuf.: Corian, Color: Deep Nocturne.
    - a. Finish: Matte
  3. Acceptable manufacturers: Substitutions must be submitted during the bidding period for approval by Architect.
    - a. Corian
    - b. Hanstone
    - c. Formica
  4. See drawings for locations of solid surface and profile trim where applicable. See Interior Finish Legend & Interior Room Schedule A700.
- B. Solid Surface Counter support where applicable:
  1. Counter to be installed on square tube stock or angle iron support framing when not over cabinetry or casework. Support framing to include perimeter supports, perimeter supports at cutouts, and cross supports where necessary.
    - a. Maximum deflection of solid surface to be 1/8" (3 mm) over 10 feet (3 m)



2. Where underlayment is indicated, install solid surface over 3/4" plywood underlayment. If spacers are required, they are to be moisture-resistant MDF or moisture-resistant plywood.
3. All counter surfaces that do not have cabinets below require a 3/4" plywood substrate underlayment to avoid future cracking of the solid surface counter.
4. Solid surface counter edges at overhangs to be built-up construction unless noted otherwise.

- C. Solid Surface Window sills, reference A600 Schedules Doors & Windows for locations and dimensions.

### 2.3 CASEWORK HARDWARE:

- A. All cabinet hardware shall be furnished and installed by the casework manufacturer.

1. Drawer slides:
  - a. Full extension slides for file drawers
  - b. White Euroslides for typical drawers
  - c. Manufacturers: Accuride, Mepla, Hafele, or Knap & Vogt.
2. Line boring with metal shelf clips.
3. Hinges: 120-degree concealed casework hinges with self-closing feature.
  - a. Provide number of hinges per manufacturer's recommendations. In no case less than:
    - i. Three (3) hinges per door with a height 40" or greater or a weight between 15-30 lbs.
    - ii. Four (4) hinges per door with a height 60" or greater or a weight between 30-45 lbs.
    - iii. Five (5) hinges per door with a height of 80" or greater or a weight between 45-60 lbs.
  - b. Where wheelchair accessibility is required for base cabinets with sink, provide 170-degree concealed casework hinges with magnetic catches.
  - c. Manufacturers: Blum, Salice, Hafele or Grass.
4. Pulls: as specified on drawings with brushed brass finish.
5. Locks: Cam locks where noted on drawings.
  - a. All locks to be separately keyed with a master key provided.
  - b. Manufacturers: National or approved equal.
6. Silencers: Provide a minimum of 2 silencers for each cabinet door and drawer.

### PART 3 - EXECUTION

#### 3.1 PREPARATION FOR FINISHING:

- A. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing of concealed surfaces and similar preparations for finishing of millwork as applicable to each unit of work.
- B. Shop Finishing: to the greatest extent possible, finish millwork at shop or factory. Defer only final touch-up, cleaning and polishing for times after delivery and installation.

#### 3.2 PREPARATION FOR INSTALLATION:

- A. Condition millwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Coordinate installation of backing for support, before walls are built.

#### 3.3 INSTALLATION:

- A. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level; and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.
- B. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- C. Anchor millwork to anchors or built-in blocking. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with millwork, and matching final finish where transparent finish is indicated.

#### 3.4 CASEWORK:

- A. Set and secure casework in place rigid, plumb and square.
- B. Use purpose designed fixture attachments for wall-mounted components. Attach wall-mounted cabinets in order that they can withstand all superimposed loading.
- C. Use thread steel concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
- D. Permanently fix cabinet and counter bases to floor using appropriate angles and anchorages.
- E. Counter-sink semi-concealed anchorage devices used to wall mount components, and conceal with solid plugs of species to match surrounding wood. Place flush with surrounding surfaces.
- F. Carefully scribe cabinetwork which is against other building materials leaving gaps of 1/32" maximum. Seal gaps with sealant tinted to match adjacent surfaces. Do not use additional overlay trim for this purpose.
- G. Install and adjust cabinet hardware to ensure smooth and correct operation.

#### 3.6 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

- A. Repair damaged and defective millwork wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace millwork. Adjust joinery for uniform appearance.
- B. Clean hardware, lubricate and make final adjustments for proper operation.
- C. Clean millwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- D. Provide final protection and maintain conditions, in a manner acceptable to fabricator and installer, which ensures millwork being without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 22 00

# Division 07 - Thermal & Moisture Protection



## SECTION 07 19 00 - WATER REPELLENTS

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. Provide all of the labor, materials, equipment, and services required to furnish and install the water repellent coating for masonry units.

#### 1.02 QUALITY ASSURANCE:

- A. Application of materials shall only be by an authorized applicator so designated and approved by the manufacturer.

#### 1.03 SUBMITTALS:

- A. Prior to application of materials, submit to the Architect for review the following:
  - 1. Manufacturer's literature fully describing the product and the method of application for this project. The method and rate of application shall be completely outlined in order that the Architect will be fully aware of the procedure.

### PART 2 - PRODUCTS

#### 2.01 WATER REPELLENT COATING:

- A. Zydex Zycosil Water Repellant  
Zydexindustries.com
- B. PROSOCO, Inc. Sure Klean Weatherseal Siloxane PD.
  - 1. For use on brick veneer.
- C. PROSOCO, Inc. Sure Klean Weatherseal Siloxane WB Concentrate.
  - 1. For use on concrete masonry units.
- D. Advanced Chemical Technologies Sil-ACT Dri-Trete WB.

### PART 3 - EXECUTION

#### 3.01 PREPARATORY WORK:

- A. Complete all caulking, pointing and repair work before commencing application. If the application must precede such work, care shall be taken to avoid application of water repellent coating to joint faces (such as contamination may cause sealant adhesion problems).
- B. All surfaces shall be structurally sound, clean and free of all dust, dirt, paint, bitumens, efflorescence, oil, pollution, deposits, curing, forming, and parting compounds. New masonry construction shall be fully cured and dry.
- C. Surface shall be dry and free of frost. After rainfall, allow surface to dry at least 2 to 3 days to avoid developing hazing effect.

#### 3.02 APPLICATION:

- A. Stir container just before using to assure the mixture of hydrophobic filler.
- B. Apply at any time when temperatures are above 40 deg. F. Apply directly from the container using a good quality brush, roller, airless or convention air type sprayer. Equip all sprayers with neoprene hose. All tools and equipment shall be clean prior to and during application to prevent possible staining or discoloring.
- C. Apply in a uniform manner that fully wets out the surface yet does not cause flooding or rundowns. "Pick off" any rundowns with a brush or dry roller to prevent unsightly lap or rundown marks.
- D. When spray applying, spray a uniform horizontal stroke followed by a uniform overlapping vertical stroke.
- E. Coverage rate: As recommended by the manufacturer.

### 3.03 CLEAN UP:

- A. If applied to glass or anodized aluminum, remove immediately by wiping with a clean cloth saturated with Xylene or Reducer 990 followed with a mild detergent wash.

END OF SECTION 07 19 00

## SECTION 07 21 16 - BLANKET INSULATION

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment, and services to furnish and install the blanket insulation.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Manufacturer's catalog data fully describing the product and indicating installation recommendations.

#### 1.4 DELIVERY:

- A. Deliver materials in original packages, containers, or bundles bearing manufacturer's labels. Labels shall indicate brand name and descriptive data confirming compliance with requirements herein specified.

#### 1.5 PROTECTION:

- A. Keep materials dry, protected against moisture, weather, and damage.

### PART 2 - PRODUCTS

#### 2.1 UN-FACED BATT INSULATION:

- A. Mineral or fiberglass composition conforming to ASTM C665, Type I. Produce insulation by combining thermosetting resins with mineral fibers manufactured from glass, slag wool or rock wool.
- B. Thickness: See Drawings.
  - 1. 3 ½" = R-11
  - 2. 6" = R-19
  - 3. 9" = R-30
  - 4. 3 ½" = R-11 for sound attenuation batts
- C. Provide nylon mesh for support where insulation is suspended between bottom chords of roof trusses.
- D. When used in fire-resistance-rated assemblies, comply with mineral-fiber requirements of assembly.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION:

- A. Install insulation in accordance with the manufacturer's printed instructions without gaps or

voids.

- B. Trim insulation to neatly and tightly fit spaces. Use batts free of damage.
- C. Install in the number of layers necessary to achieve the required thickness.
- D. Physically and permanently attach batts to framing so as to prevent downward slippage of batt. Support relying on friction alone will not be allowed.
- E. Back-fill above suspended ceiling systems:
  - 1. Install insulation between wire rods, perpendicular to ceiling system main tees. Batts should fit tightly together.
  - 2. Wire rod, chicken wire, or wire may be needed to hold insulation in place.
  - 3. Do not install insulation on top of, or within 3 inches of recessed light fixtures unless the fixtures are approved for such use.
  - 4. Refer to ceiling system manufacturer's recommendations on maximum back-loading recommendations and to ensure proper installation.

### 3.2 CLEAN UP:

- A. When work is completed in each area, remove debris, equipment, and excess material and leave area broom clean.

END OF SECTION 07 21 16



## SECTION 07 21 22 - MASONRY FILL INSULATION

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. Provide all of the labor, materials, equipment and services to furnish and install masonry fill or cavity wall insulation.

#### 1.02 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Manufacturer's catalog data fully describing the product and indicating installation recommendations.

#### 1.03 DELIVERY:

- A. Deliver materials in original packages, containers, or bundles bearing manufacturer's labels. Label shall indicate brand name and descriptive data confirming compliance with requirements herein specified.

#### 1.04 PROTECTION:

- A. Keep materials dry, protected against moisture, weather, and damage.

### PART 2 - PRODUCTS

#### 2.01 FOAMED-IN-PLACE INSULATION:

- A. Class A Rated foamed-in-place insulation with flame spread not to exceed 15, absorption not to exceed 5% and shrinkage factor of not more than 2%.
- B. Wall assembly to provide the following R-values:
  - 1. 12" CMU R=20
  - 2. 8" CMU R=14.2
  - 3. 1" Cavity R=4.9
- C. Foam Insulation shall be self-extinguishing or noncombustible and compliant with VOC regulations.
- D. Material shall achieve 4-hour requirements based on standard 2-hour rated 8" & 12" CMU as tested in conformance with ASTM E-119.
- E. Acceptable Products:
  - 1. Core Fill 500 by Tailored Chemical Products, Inc.; 1-800-627-1687.
  - 2. Polymaster R-501 by Polymaster Inc.; 1-800-580-3626.
  - 3. Or Approved Substitute

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Install insulation in strict accordance with manufacturer's printed installation instructions.
- B. Installer shall be licensed and approved by the manufacturer.
- C. Install thru mortar joints with 5/8" holes max. Repair wall surface as recommended by manufacturer.

3.02 CLEAN-UP:

- A. When work is completed in each area, remove debris, equipment and excess material, and leave area broom clean.

END OF SECTION 07 21 22

## SECTION 07 84 00 - THROUGH-PENETRATION FIRESTOP SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes through-penetration fire-stop systems for the following types of fire-resistance-rated assemblies:
  - 1. Floors.
  - 2. Roofs.
  - 3. Walls and partitions.
  - 4. Smoke barriers.
  - 5. Construction enclosing compartmentalized areas.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. F-Ratings: Provide firestop systems with F-ratings equaling or exceeding fire-resistance rating of constructions penetrated as determined per ASTM E 814/UL1479.
- B. T-Ratings: Provide firestop systems with T-ratings required, as well as F-ratings, determined per ASTM E 814/UL 1479, where systems protect penetrating items with potential to contact adjacent materials in occupiable floor areas including, but not limited, to the following:
  - 1. Penetrations located outside wall cavities.
  - 2. Penetrations located outside fire-resistive shaft enclosures.
  - 3. Penetrations located in construction containing fire-protection-rated openings.
  - 4. Penetrating items larger than 4-inch- diameter nominal pipe or 16 sq. in. in overall cross-sectional area.
- C. For firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant firestop systems.
  - 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
  - 3. For penetrations involving insulated piping, provide firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread indices of less than 25 and smoke-developed indices of less than 450, when tested per ASTM E 84.
- E. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
- F. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

- G. For those firestop applications that exist for which no UL tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests shall be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgment drawings shall follow requirements set forth by the International Firestop Council (September 7, 1994).

### 1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include details of installation and design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
- C. Product certificates and test reports.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

### 1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide rated systems identical to those tested per ASTM E 814/UL 1479 and with products bearing the classification marking of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate firestop systems.

### 1.6 INSTALLER QUALIFICATIONS

- A. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the Firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its Firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) and joint systems (XHBN) listed in Volume II of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:
  - 1. Hilti Construction Chemicals, Inc.
  - 2. 3M Fire Protection Products.
  - 3. Tremco; Sealant/Weatherproofing Division.
  - 4. Grace, W. R. & Co. - Conn.
- B. One manufacturer shall be used for Firestopping on entire project. Manufacturer shall be present at pre-construction meeting and provide training to installers.

## 2.2 FIRESTOP SYSTEMS

- A. Compatibility: Provide firestop systems that are compatible with the substrates forming openings, and with the items, if any, penetrating firestop systems, under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Provide components for each firestop system that are needed to install fill material. Use only components specified by the firestop system manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Clean openings immediately before installing firestop systems.
  - 1. Remove foreign materials that could interfere with adhesion of firestop systems.
  - 2. Remove laitance and form-release agents from concrete.
  - 3. Produce clean, sound surfaces capable of developing optimum bond with firestop systems. Remove loose particles remaining from cleaning operation.
- C. Priming: Prime substrates when recommended in writing by firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not spill primers or allow them to migrate onto adjoining surfaces.
- D. Masking Tape: Use masking tape where required to prevent contact of firestopping with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove firestopping smears. Remove tape immediately after installation without disturbing firestopping seal.
- E. Accessories: Install accessories of types required to support fill materials during their application and in the position necessary to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials, remove combustible forming materials and other accessories that are not permanent components of firestop systems.
- F. Install fill materials for firestop systems by proven techniques.
1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- G. Identification: Identify firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible. Include the following information on labels:
1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Through-penetration firestop system designation of applicable testing and inspecting agency.
  4. Date of installation.
  5. Firestop system manufacturer's name.
  6. Installer's name.
- H. Clean excess fill materials adjacent to openings as installation progresses by methods and with cleaning materials that are approved in writing by manufacturers and that do not damage materials in which openings occur.

### 3.2 FIELD QUALITY CONTROL

- A. Do not cover up firestop system installations that will become concealed behind other construction until inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.
- B. Inspecting agency will state in each report whether inspected firestop systems comply with or deviate from requirements.
- C. Enclose firestop systems with other construction only after inspection reports are issued.
- D. Where deficiencies are found, repair or replace firestop systems to comply with requirements.

END OF SECTION 07 84 00

## SECTION 07 90 00 - SEALANTS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment, and services required to furnish and install the sealant and caulking.
- B. The purpose of caulking in this Work is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Complete and fully descriptive manufacturer's literature for each type of sealant used naming product formulation and giving product limitations.
  - 2. Data proving the product meets or exceeds the ASTM number referenced.
  - 3. Color chart for the Architect's selection.
  - 4. Submit statements by the manufacturers and installers of their acceptance of these documents and conditions and/or any modification proposed to the use of the products. Include a statement from the manufacturer that the proposed use of the product for the conditions encountered is proper.
  - 5. Submit a guarantee warranting all defects of material and/or application for a period of five (5) years from Date of Substantial Completion. Any failure that may occur within this warranty period, due to defective application and/or materials shall, upon written notification of such failure, be repaired or replaced with proper materials and/or labor as approved by the Architect, at no additional cost to the Owner.

#### 1.3 DEFINITIONS:

- A. The terms "Sealant" and "Caulking" shall be used interchangeably throughout the Contract Documents and shall be interpreted to mean the same material.

### PART 2 - PRODUCTS

#### 2.1 SEALANT - EXPANSION JOINTS, CONTROL JOINTS, AND PERIMETER OF DOOR AND WINDOW FRAMES:

- A. Neutral Curing Silicone Sealant, conforming to ASTM C 920, Type S, Grade NS, Class 100 sealant. For use in all exterior building joints.
  - 1. Pecora 890/890 FTS (Field Tintable Silicone).
  - 2. Tremco Spectrum 1 or 2.
  - 3. Dow Corning 790/756 Building Sealant.
  - 4. Or an approved substitute.
- B. Joint Backing: Backer rod as recommended by sealant manufacturer.

- C. Where joint depth does not permit use of joint backing, a release paper or bond breaker shall be used.
- D. On horizontal joints, surface must be cleaned and primed using primer as recommended by the sealant manufacturer.

2.2 SEALANT - SETTING THRESHOLD; FLASHING; AND GENERAL SEALING NOT OTHERWISE DELEGATED:

- A. Dynatrol I  
Pecora Corp.  
Or an approved substitute.
- B. Joint Backing: Round closed-cell polyethylene.

2.3 PRIMERS:

- A. As recommended by the sealant manufacturer for use in conjunction with the sealant for application onto the various types of materials to which the sealant is applied, and complying with the requirements above. When the manufacturer's instructions make reference to use of primers and/or the construction condition requires special surface preparation, these instructions shall be complied with.

2.4 CLEANERS:

- A. Where required by manufacturer's instruction in lieu of primers, shall be of the type and kind recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.1 CHOICE OF CAULKING MATERIAL:

- A. Use only that caulking material which is best suited to the installation and is so recommended by the caulking material manufacturer.

3.2 BACK-UP MATERIALS:

- A. Verify the compatibility of filler materials with caulking before installation.
- B. Use filler about 1/3 to 1/2 wider than width of joint so sufficient pressure is exerted by filler to provide substantial resistance to displacement.
- C. All filler materials shall be non-oily, non-staining, back-up filler such as polyethylene foam rod, expanded polyurethane, neoprene or other filler completely compatible with the caulking material.

3.3 APPLICATION OF CAULKING:

- A. Do not caulk under weather conditions or sun conditions potentially harmful to the set and



curing of the caulking material.

- B. Deliver materials to the job or place of application in original unopened containers bearing manufacturer's name and product designation.
- C. Install caulking in strict accordance with the manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by the manufacturer, and to immediately remove all surplus caulking.

#### 3.4 CAULKING SCHEDULE:

- A. Carefully study the Drawings and furnish and install the proper caulking at each point where called for on the Drawings plus at all other points, whether specifically designated or not, where caulking is essential in maintaining the continued integrity of the intended watertight barrier.

END OF SECTION 07 90 00



# Division 08 - Openings



## SECTION 08 14 16 - FLUSH WOOD DOORS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services to furnish and install the flush wood doors.

#### 1.2 QUALITY ASSURANCE:

- A. Comply with the applicable requirements of the following standards unless otherwise indicated.
  1. ANSI/WDMA I.S. 1-78, "Industry Standard for Wood Flush Doors".
  2. UL10-C fire test for mineral core fire doors.
  3. Provide doors with fire-resistance ratings indicated or required to comply with governing regulations.
  4. All labeled doors shall be manufactured in accordance with the specifications procedures of the Underwriter's Laboratories. All labeled doors shall physically bear the U.L. label showing the rating required.

#### 1.3 SUBMITTALS:

- A. Prior to fabrication, submit the following to the Architect for review:
  1. Complete and fully descriptive manufacturer's literature.
  2. Shop drawings: Sizes, face veneer, edge construction, core construction, necessary details, and factory finishing.
  3. Door schedule: Show door sizes, opening numbers or designations and elevations, door type, fire classification marking, swing, light and louver cutout sizes and locations, and undercut.
  4. Physical sample: Cross section at door corner.
  5. Certification: Submit written certification signed by an officer of the manufacturing firm that shall certify that the materials delivered to this work comply in all respects with the requirements of the Contract Documents.

#### 1.4 GUARANTEE:

- A. Submit written guarantee for use for the life of the installation, including repair and/or replacement, and refinishing of defective material in accordance with the standard door guarantee of the National Woodwork Manufacturer's Association.

#### 1.5 PRODUCT HANDLING:

- A. Package each door at the factory in separate heavy paper-type carton or poly bag. Mark each carton or door for location to correspond with opening number on Drawings.

### PART 2 – PRODUCTS

#### 2.1 INTERIOR DOORS - SOLID CORE - FOR STAIN FINISH: (D)

- A. WDMA Premium Grade 5-Ply Hot Press Construction
- B. Species and Cut: Basis of Design – (D-1)
  1. Plain sliced White Oak, Book match and balance match – Factory finish where clear.

2. Medium Density Overlay – Factory paint finish where paint is called for. Provide custom colors as indicated on drawings.
- C. Core construction:
1. Non-rated: Structural Composite Lumber SCLC
  2. Rated: Mineral - 45 minute or greater. Furnish Category “A” imbedded intumescent insert.
  3. Provide 5" inner blocking at top rail of mineral core doors.
  4. Provide inner blocking for locks and panics at mineral core doors.
  5. Provide bonded core assembly.
- D. Subject to compliance of all specifications in this section.  
Acceptable manufacturers are:
1. Basis of Design: Masonite Architectural
  2. Eggers Industries; Architectural Door Division.
  3. VT Industries
  4. Oshkosh Architectural Door Company.
  5. Graham Manufacturing.
  6. Lambton Doors.
- E. Factory Finish: Manufacturer's standard finish with performance comparable to AWI System TR-6 catalyzed polyurethane.
1. Staining: As indicated on drawings or if not indicated as selected by Architect from manufacturer's full range.
- F. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- 2.2 LIGHTS AND LOUVERS:
- A. Provide openings with stops for lights and louvers.
  - B. Provide the manufacturer's standard wood louvers where indicated.
- 2.3 PRE-FITTING AND PRE-MACHINING:
- A. Pre-fit doors at the factory in accordance with tolerance requirements of the WDMA standards with allowances for undercuts (if any). Provide standard bevel or radius to edge of door as required for the installation.
  - B. Machine doors for butts, locksets, concealed closers, concealed holders, concealed exit hardware and flush bolts. Machine in accordance with templates of approved hardware manufacturer.

### PART 3 - EXECUTION

#### 3.1 INSPECTION:

- A. Examine door frames and verify that frames are correct type and have been installed as required for proper hanging of corresponding doors. Correct any conditions that will be detrimental to proper and timely installation of wood doors. Do not proceed with installation until unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION:

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Hardware: See Section 08 71 00, "Door Hardware".
- C. Install wood doors in accordance with manufacturer's instructions and as shown.
- D. Pre-fit doors: Fit to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.
- E. Clearance:
  - 1. Non-rated doors: Provide clearances of 1/8" at jambs and heads; 1/8" at meeting stiles for pairs of doors; and 1/2" from bottom of door to top of finish floor material or covering. At thresholds, provide 1/4" clearance from bottom of door to top of threshold.
  - 2. Fire-rated doors: Provide clearances complying with NFPA.

## 3.3 ADJUST AND CLEAN:

- A. Re-hang or replace doors which do not swing or operate freely.
- B. Refinish or replace doors damaged during installation.

END OF SECTION 08 14 16





## SECTION 08 31 13 - ACCESS DOORS AND FRAMES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes access doors and frames for walls, ceilings and floors.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of access door and frame indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each door face material in specified finish.
- D. Schedule: Types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

#### 1.3 QUALITY ASSURANCE

- A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - 1. NFPA 252 or UL 10B for vertical access doors and frames.
  - 2. ASTM E 119 or UL 263 for horizontal access doors and frames.

#### 1.4 COORDINATION

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work.

### PART 2 - PRODUCTS

#### 2.1 STEEL MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36.
  - 1. ASTM A 123, for galvanizing steel and iron products.
  - 2. ASTM A 153, for galvanizing steel and iron hardware.

- B. Steel Sheet: electrolytic zinc-coated, ASTM A 591 with cold-rolled steel sheet substrate complying with ASTM A 1008, Commercial Steel (CS), exposed.
- C. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Factory-Primed Finish: Manufacturer's standard shop primer.
- D. Drywall Beads: 0.0299-inch zinc-coated steel sheet to receive joint compound.
- E. Plaster Beads: 0.0299-inch zinc-coated steel sheet with flange of expanded metal lath.
- F. Manufacturer's standard finish.

## 2.2 ALUMINUM MATERIALS

- A. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6, mill finish.
- B. Aluminum-Alloy Rolled Tread Plate: ASTM B 632, Alloy 6061-T6, mill finish.
- C. Aluminum Sheet: ASTM B 209.
  - 1. Mill finish.

## 2.3 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Acudor Products, Inc.
  - 2. Babcock-Davis; A Cierra Products Co.
  - 3. Bar-Co, Inc. Div.; Alfab, Inc.
  - 4. Cendrex Inc.
  - 5. Dur-Red Products.
  - 6. Elmdor/Stoneman; Div. of Acorn Engineering Co.
  - 7. Jensen Industries.
  - 8. J. L. Industries, Inc.
  - 9. Karp Associates, Inc.
  - 10. Larsen's Manufacturing Company.
  - 11. MIFAB, Inc.
  - 12. Milcor Inc.
  - 13. Nystrom, Inc.
  - 14. Williams Bros. Corporation of America (The).
- B. Flush Access Doors and Trimless Frames: Fabricated from metallic-coated steel sheet.
  - 1. Locations: Wall and ceiling surfaces.
  - 2. Door: Minimum 0.060-inch thick sheet metal.
  - 3. Frame: Minimum 0.060-inch thick sheet metal with drywall bead flange.
  - 4. Hinges: Spring-loaded, concealed-pin type.

5. Latch: Cam latch with interior release.
  6. Lock: Cylinder.
- C. Fire-Rated, Insulated, Flush Access Doors and Trimless Frames: Fabricated from steel sheet.
1. Locations: Wall and ceiling surfaces.
  2. Fire-Resistance Rating: Not less than that of adjacent construction.
  3. Temperature Rise Rating: 250 deg F at the end of 30 minutes.
  4. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch.
  5. Frame: Minimum 0.060-inch thick sheet metal with drywall bead.
  6. Hinges: Concealed-pin type.
  7. Automatic Closer: Spring type.
  8. Latch: Self-latching device operated by flush key with interior release.
  9. Lock: Self-latching device with cylinder lock.

## 2.4 FLOOR ACCESS DOORS AND FRAMES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acudor Products, Inc. (aluminum only).
  2. Babcock-Davis, A Cierra Products Co.
  3. Bilco Company (The).
  4. Cendrex Inc.
  5. Dur-Red Products.
  6. Halliday Products (aluminum only).
  7. J. L. Industries, Inc.
  8. Karp Associates, Inc.
  9. Milcor Inc.
  10. Nystrom, Inc.
  11. U.S.F. Fabrication.
- B. Floor Doors, General: Equip each door with adjustable counterbalancing springs, heavy-duty hold-open arm that automatically locks door open at 90 degrees, release handle with red vinyl grip that allows for one-handed closure, and recessed lift handle.
- C. Aluminum Floor Door: Single-leaf opening. Extruded-aluminum angle frame with 1/4-inch thick, diamond-pattern, aluminum tread plate door; nonwatertight; loading capacity to support 300-lbf/sq. ft. pedestrian live load.
- D. Steel Angle-Frame Floor Door: Single-leaf opening. Prime-painted structural-steel frame with thick, diamond-pattern, prime-painted structural-steel tread plate door; nonwatertight; loading capacity to support 300-lbf/sq. ft. pedestrian live load.
1. Fire-Resistance Rating: Not less than that of adjacent construction.
  2. Finish painted in yellow with wording "FIRE DOOR - DO NOT STORE MATERIALS ON SURFACE."
- E. Hardware: Provide the following:

1. Hinges: Heavy-duty stainless-steel butt hinges with stainless-steel pins.
2. Latch: Stainless-steel slam latch.
3. Lock: Keyed deadlock bolt
4. Hardware Material: Stainless steel, including latch and lifting mechanism assemblies, hold-open arms, and all brackets, hinges, pins, and fasteners.

## 2.5 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view, provide materials with smooth, flat surfaces without blemishes.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
- D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.
- E. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
  1. For cylinder lock, furnish two keys per lock and key all locks alike.
  2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
- F. Extruded Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust doors and hardware after installation for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08 31 13



## SECTION 08 56 53 BULLET RESISTANT WINDOWS

### PART 1 – GENERAL

#### 1.1 REFERENCE

- A. The publication below forms a part of this specification.  
UNDERWRITERS LABORATORY UL 752 9<sup>th</sup> Edition dated Jan. 27, 1995  
Standard for Bullet Resistant Equipment

#### 1.2 DESIGN

- A. Extruded aluminum frames shall have a 2 ½ “ face and 4 ½” depth. Frames shall be designed to defeat ballistic assaults as tested in accordance with UL 752 Level 3 standard.

#### 1.3 SUBMITTALS

- A. The following shall be submitted in accordance with division 01. Submit for approval prior to fabrication: VERIFICATION OF UL LISTING OF BULLET RESISTANTS for all system components, catalog cuts, shop drawings, specifications, frame profiles, size, type and spacing of frame anchors, reinforcement size and locations, details of joints and connections, welding details, glazing data sheets and samples, sample warrantys for glazing and window frames and printed data in sufficient detail to indicate compliance with the contract documents. Manufacturer’s instructions for installation and cleaning.

#### 1.4 WARRANTY

- A. All materials and workmanship shall be warranted against defects for a period of one (1) year from date of receipt at job site.
- B. Glazing shall be warranted against defects for a period of 5 years.
- C. Finish warranty shall warrant entire finish system against fading, chalking, cracking, peeling or checking for a period of not less than 20 years commencing on the date of substantial completion

### PART 2 – PRODUCTS

#### 2.1 FRAMES

- A. Bullet Resistant frames and glazing assemblies shall be furnished by one of the following:
  - a. US Bulletproofing
  - b. Safeguard Security Services, Ltd.
  - c. Action Bullet Resistant, a division of Action Storefronts, Inc.
  - d. Other manufactures submitted in accordance with Division 01 10 days prior to bid.
- B. All components will be constructed from extruded aluminum in 6061-T6 alloy / temper, or equal.

- C. Interior glazing gaskets shall be closed cellular neoprene and exterior gaskets will be solid neoprene. All joints and connections shall be tight providing hairline joints and true alignment of adjacent members. All anchorage to the structure shall provide 3-way adjustments to compensate for normal building tolerances. All aluminum extrusions shall be extruded form 6061-T6 alloy or equal with a minimum tensile strength (minimum 38.0 ksi ultimate, 35.0 ksi yield). All internal framing fasteners shall be type 18-8 stainless steel. Framing to building structure will be grade 5, cadmium or nickel plated. Interior glazing gaskets shall be closed cellular neoprene (40-50 shore "A" durometer). Exterior glazing gaskets shall be solid neoprene (65-75 shore "A" durometer). All neoprene shall be in strict compliance with ASTM C-509-89 type II option I and A-864-89.

## 2.2 GLAZING

- A. Glazing shall be UL Listed Level 3.
- B. All glazing shall be bullet resistant laminate equal to ArmorResist as manufactured by Oldcastle Glass. Poly polycarbonate glazing will not be acceptable.

## 2.3 FINISH

- A. Standard finish for all aluminum components shall include manufacturers premium multi-step Fluorocarbon (Kynar 500) factory applied paint coating system. See drawings for color.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Set frames and glaze in accordance with manufacture's instructions. Repair damaged units (if approved by the manufacturer and the architect) or replace with new units.

### 3.2 PROTECTION

- A. Properly store all the frames, glazing material etc. in a dry location and covered to protect from damage before and after installation.

### 3.3 CLEANING

- A. Upon completion, clean exposed surfaces of frames and glazing products thoroughly in accordance with manufacturer's instructions. Remove mastic smears and other unsightly marks.

END OF SECTION 08 56 53



## SECTION 08 71 00 - DOOR HARDWARE

### GENERAL

#### 1.1 DESCRIPTION OF WORK

- A. Work Included This Section:
  - 1. Work of this Section shall include all labor, materials, equipment, transportation, tools and storage required for complete installation of all finish hardware, shown and scheduled on Drawings and specified herein.
  - 2. It is the intent of this Specification to provide complete finishing hardware requirements for the entire building project excepting hardware, which is specifically mentioned as furnished by others.
  
- B. Work Not Included:
  - 1. Hardware for:
    - a) Toilet Partitions and Doors.
    - b) Millwork and Cabinets.
  
- C. Related Work Specified Elsewhere:
  - 1. Hollow Metal Doors and Frames (08 11 13)
  - 2. Flush Wood Doors (08 14 16)
  - 3. Aluminum-Framed Entrances and Storefronts (08 41 13)

#### 1.2 QUALITY ASSURANCE

- A. The Hardware Supplier shall be one having in his regular employ, an AHC (Architectural Hardware Consultant) who is, through experience, capable of supervising the furnishing and installation of the hardware requirements contained herein.
  - 1. The consultant shall be available for technical assistance on the site that may be required in connection with hardware installation.
  
- B. The Hardware Supplier, if required, shall provide information to the Architect, documentation that he has the experience and knowledge to furnish the proper hardware for this work and that he has a record of completing similar projects on time and to the satisfaction of the Owner and Architect.
  
- C. Pre-submittal Meeting:
  - 1. Prior to the hardware submittal, the Contractor shall have a coordination meeting with all Suppliers and Subcontractors involved with supplying or installing components of the hardware system for each and every door with electrical components.
  - 2. Include at a minimum the following:
    - a) Contractor.
    - b) Hardware supplier.
    - c) Controls installer.
    - d) Fire Alarm installer.

- e) Electrician.
  - f) Owner representative.
  - g) Architect.
- D. Immediately after the approval of the hardware submittal but prior to the installation of any electrified hardware the Contractor shall have a coordination meeting with all Suppliers and Installers involved with supplying or installing any electrified component of the hardware system for each and every door.
- 1. Minutes to be submitted as part of the submittal requirements.
- E. Service:
- 1. The project shall be visited by a representative of the hardware supplier during the course of construction. One time shall be after all hardware is applied.
  - 2. The supplier must write a letter to the Architect after this visit and state his findings.
- F. Codes and Regulations:
- 1. All hardware listed or furnished shall meet requirements of Federal, State and Local Codes (including ADA) have jurisdiction over this installation.
- G. Any item furnished or installed that does not meet code requirements as specified, shall be removed and proper items substituted at no additional cost or expense to the Owner. All hardware furnished in connection with doors bearing Labels or where necessary to meet special requirements, such as handicapped codes, will be in strict accordance with conditions established by the authority having jurisdiction and subject to approval of that authority as specified herein.

### 1.3 SUBMITTALS

- A. Hardware Schedule:
- 1. A detailed hardware schedule (wet sealed by an AHC) shall be prepared showing doors and indicating the type of swing, key side, room to and from, the degrees of swing, the type of door buck, any special hardware locations, and a list of the hardware and manufacturers of each item.
  - 2. This schedule shall also show the recommended keying arrangement, which shall be submitted through the General Contractor to the owner for approval.
  - 3. Schedule shall include a consecutive listing of doors (numbered in sequence as shown on the Architectural Drawings) showing hardware for each door.
  - 4. Hardware containing electronics, including automatic hardware, shall have complete, point to point wiring diagrams of each opening indicating wire sizes for special hardware for each hardware set required and final responsibility of all connections.
  - 5. The hardware supplier shall submit for approval, six (6) copies of the complete hardware. No hardware shall be delivered until the Contractor and Architect have approved the hardware schedule.
  - 6. The hardware supplier shall submit along with the Finish Hardware Schedule, catalogue cuts of all items submitted as well as catalogue cuts of the specified items.
    - a) If ANSI products or generic items are specified, the scheduled items will be cross-referenced.
    - b) Provide samples when requested.

7. Provide detailed riser diagrams of all electrically actuated hardware including proper interfacing with any automatic door operators.
- B. Samples:
1. Provide samples at no cost of hardware when requested.
- C. Provide two complete sets of maintenance manuals, spare parts and tools.
- D. Templates:
1. Immediately after the award of the hardware contract, the hardware supplier shall request approved shop drawings from those trades with which hardware must be coordinated.
  2. After checking shop drawings, he shall promptly supply necessary template information to all concerned as may be required to facilitate the progress of the job.
  3. All procedures for template information shall be in accordance with the DHI Handbook, "Recommended Procedure for Processing Hardware Schedules and Templates".
- E. Submittal Review Conference: No less than two weeks after delivery of the door, door frame and hardware submittals, the General Contractor, along with the hardware supplier, shall organize a submittal coordination conference that may also be attended by representatives of the architect and the Owner. The purpose of this meeting is; to review the details of the hardware and keying with all concerned parties prior to fabrication, inform the user of the specific equipment that will be furnished, and make necessary changes.

#### 1.4 PRODUCT HANDLING

- A. Template Requirements:
1. Supply all templates and template information to other manufacturers whose work is affected by the work of this section.
  2. Hardware for use with hollow metal doors and frames and aluminum doors and frames shall be furnished to template.
  3. Attachment shall be with machine screws or through bolts when required.
  4. Hardware Supplier shall furnish templates to the wood door manufacturer for pre-fitting and pre-machining of the doors as specified.
- B. Delivery and Packaging:
1. Deliver items of hardware in one shipment, or as required by General Contractor, direct from supplier warehouse to the jobsite along with packing list showing where each piece of hardware can be found.
  2. Package each item of hardware separately in individual containers complete with screws, instructions, and installation templates.
  3. Identify each container with number of door to which hardware item is to be applied.
    - a) Items such as hinges (except special types), door stops, weather stripping, silencers, and standard size kick plates will not require "door number" identification.

#### 1.5 APPLICABLE PUBLICATIONS

- A. The following current publications form a part of this specification to the extent indicated by any references thereto.
1. American National Standards Institute (ANSI) Standards (Relating to Finish Hardware)
  2. Builders' Hardware Manufacturers Association (BHMA) Standards

3. Door & Hardware Institute - "Hardware for Buildings" Handbooks
  4. National Fire Protection Association (NFPA) Publications
    - a) 70 – latest edition National Electric Code
    - b) 80 - latest edition Standard for Fire Doors and Windows
    - c) 101- latest edition Code for Safety to Life from Fire in Buildings and Structures
- B. Fire Rated Doors and Frames:
1. Where emergency exit devices are required on fire rated doors, provide UL or WHI label on exit devices indicating "Fire Exit Hardware".
  2. Install closing (self-closing or automatic closing) device on every fire door bearing fire labels.
- C. Underwriters' Laboratories, Inc. (UL), Factory Mutual, Warnock Hersey or other nationally recognized testing laboratories.
- D. North Carolina Building Code with latest edition.

## 1.6 STORAGE

- A. Contractor shall furnish a secure locked dry storage area for delivery by Hardware Supplier of finish hardware and storage of same. Contractor shall be responsible for shortages due to theft, pilferage, etc.
- B. Provide storage space with necessary open shelves, bins, and counters for assembly and grouping hardware before distribution and installation. Specialty items such as door closers, exit devices, overhead holders, locksets, etc. shall not be opened until ready to use.
- C. See paragraph on keying. Store keys in indexing key envelopes as furnished by Key Control Manufacturer. Mark envelopes carefully to prevent misplacement. Turn envelopes over to Key Control Manager as required.

## 1.7 MAINTENANCE

- A. Maintenance Control:
1. Furnish maintenance repair kits and manuals as required for all hardware listed in the Contract Documents. These materials shall be sent directly to the Owner by registered mail.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Materials specified and shown in the hardware schedule are the type, design and quality required.
- B. Reinforcement:
1. Reinforcing of proper gauge, size and attachment as recommended by the Manufacturer for hardware shall be furnished and installed by the Door and Frame Manufacturer.
- C. Modifications:

1. Modifications shall not be made to hardware except with the approval of the supplier and/or manufacturer.
- D. Manufacturer:
1. Following items within each classification shall be furnished totally by one manufacturer unless schedule indicates otherwise. Acceptable products as noted.
    - a) Hinges - Hager, McKinney, PBB.
    - b) Exit Devices – Corbin Russwin, Yale, Detex.
    - c) Locksets – Corbin Russwin, Yale, Sargent.
    - d) Closers – Corbin Russwin, Norton, Yale.
- E. Lock and Latch Set:
1. All locksets (and latchsets) must conform to ANSI A156.13, Grade 1, as specified under the hardware sets and be UL listed. All lock and latch sets must be through-bolted. All locksets and latchsets must have a three-year warranty.
    - a) Subject to established performance and warranty requirements, acceptable Lock/Latch Manufacturers are:
      - 1) Corbin Russwin ML-2000 – ASA Design
      - 2) Yale 8800FL – MOR Design
      - 3) Sargent.8200 – LNB Design
      - 4) Schlage L Series – F Jazz Design
- F. Keying:
- 1 Keying and cylinder type to be per owner’s instruction. Temporary ICC cylinders shall be supplied during the construction period on all exit device trims. Permanent ICC cylinders installed by the Hardware supplier at the time of CMK removal.
  - 2 After installation of hardware and before acceptance of the building, hardware supplier shall check each locked door against key symbol to make certain that correct locks and cylinders are on proper doors.
- G. Manufacturer:
1. Following items within each classification shall be furnished totally by one manufacturer unless schedule indicates otherwise:
    - a) Hinges
    - b) Exit Devices
    - c) Locksets
    - d) Closers
    - f) Protection Plates
- H. Fasteners:
1. Use concealed fasteners whenever possible.
  2. Hardware to be installed on metal work shall be furnished with Phillips head machine screws.
  3. For exposed fasteners on interior in bronze or brass, use matching color and material for fasteners. For all other exposed fasteners on interior, use stainless steel except where noted specifically otherwise.
  4. Furnish stainless steel screws for all exterior work.
- I. Finishes:
1. Finishes shall be as follows unless the schedule dictates otherwise:
    - a) All exterior door butts shall be 630

- |   |                         |
|---|-------------------------|
| b) All interior door butts at wood doors shall be   | 652 or 630 as specified |
| c) All interior door butts at metal doors shall be  | 630                     |
| d) Locksets and exit bolts trim shall be  | 630                     |
| e) Door closers shall have sprayed lacquer finish to match adjacent hardware or shall be plated as scheduled. |                         |
| f) Door pulls shall be  | 630                     |
| g) Push plates shall be   | 630                     |
| h) Kick plates and mop plates shall be  | 630                     |
| i) Armor plates shall be  | 630                     |
| j) Thresholds and weatherstripping shall be   | 628.                    |
| k) Stops, holders, miscellaneous items shall be   | 626 or 630              |
| l) Hardware for aluminum doors shall be as specified in that section.   |                         |

## 2.2 HARDWARE ITEMS

### A. Butt Hinges:

1. In general, provide 1-1/2 pair per door of average height. For doors under 5', one pair will suffice. Doors over 90" in height shall have (2) two pair. Dutch doors shall have a minimum of two pair.
2. All hinges shall be 5 knuckle and have flat button tips unless specified otherwise.
3. Hinge size shall be 4-1/2 x 4-1/2, .134 gauge for all doors up to and including 36" wide. Doors over 37" wide and less than 42" shall have 5" x 4-1/2" .146 gauge scheduled. Doors 42" and over shall have 5" x 4-1/2" 4 ball bearing hinge .190 gauge.
4. Hinges shall be full mortise type. Hinges for labeled doors shall meet requirements for that rating.
5. Exterior outswinging doors shall have 4 bearing .190 gauge hinges sized as paragraph 3 above in brass, bronze, or stainless steel. Stainless shall be scheduled unless finish dictates otherwise.
6. Interior doors shall have steel hinges scheduled.
7. Provide ball bearing hinges on all doors with closers, all metal doors, and on doors over 37" wide and all high frequency openings. Other doors shall be plain bearing.
8. Provide hinges with non-removable pins and/or security studs for all outswing exterior doors and high security interior controlled doors.
9. Half-surface through-bolted hinges shall be provided at "B" label 1 and 1-1/2 hour rated wood doors unless manufacturer guarantees full mortise installation because of special reinforcing provisions.
14. Manufacturer shall be Bommer, McKinney, or Stanley.

### H. Exit Devices:

1. All devices shall be UL approved for all types and functions indicated in the Hardware Set.
2. Where exit devices are used in a door where the device spans across a view light in the door, the device shall be equipped with a glazing frame kit.
3. Push pad exit devices shall be patterned punched to designate code requirements where required.
4. Approved Manufacturers are as follows:
  - a) Corbin Russwin ED5000/ED4000
  - b) Yale 7100/7200
  - c) Von Duprin 98 Series

### I. Door Closers:

1. All door closers shall be stalled on the inside of the building and inside of the rooms. The following series products are approved: Norton 7500 Series, Corbin Russwin DC6000, Yale 4400 Series, LCN 4040 Series.
  2. All closer arms shall be of type required to provide maximum permissible swing of door.
    - a) Size scheduled shall be as required by manufacturer's size chart.
    - b) Closers shall be mounted parallel arm wherever closer may strike a wall or arm project into a corridor.
    - c) Where wall stops are not practical, provide stop arm.
  3. Provide closers that are both non-handed and multi-sized.
  4. The Contractor shall provide initial settings for operating force and opening range to meet the standards of ADA guidelines.
  5. Mounting door closers inside rooms.
    - a) Size requirements shall conform to the manufacturer's published recommendation and shall be shown on hardware schedule.
  6. Closers shall have a minimum 10-year warranty and be UL listed for functions shown in Hardware Sets.
- J. Door Stops:
1. Door stops shall be installed wherever an open door or any item of hardware thereon strikes a wall or other part of building construction.
    - a) McKinney wall stop WS01 shall be used.
  2. All wall stops shall be installed with proper blocking within the wall.
  3. Products of equal design, finish, and functions as manufactured by Baldwin or Rockwood will be considered equal.
  4. Where wall conditions exclude the use of a wall stop use an overhead stop. Where neither of these can apply substitute a floor stop Trimco 1211 or approved equal
- K. Door Silencers:
1. Provide 1/2" diameter rubber pneumatic type silencers, (minimum 3 per single door and 2 per opening for pair) McKinney S1M (Grey) or equal. Products of equal design, finish, and functions as manufactured by Baldwin, Ives, Rockwood, Quality, or Trimco will be considered equal.
- L. Door Pulls and Push Plates:
1. Pulls shall be as manufactured by Rockwood or approved equal.
  2. Any special pulls shall be scheduled.
  3. Push plates shall be .050 thick.
    - a) If stiles of doors will not permit, a smaller size shall be used to suit conditions.
  4. Plates shall be beveled 4 sides.
  5. Products of equal design, finish, and functions as manufactured by Baldwin, Trimco, McKinney, or Hager will be acceptable.
- M. Protection Plates:
1. Protection plates shall be .050 gauge metal.
  2. Plates shall be beveled 4 sides and attached by countersunk sheet metal oval screws and in the sizes indicated below:
    - a) Kick plates shall be 8" high
    - b) Mop plates shall be 4" high

- c) Armor plates shall be 42" high.
  - d) Width shall be 2" LDW for single doors on push side. 1" LDW on pull side and at pairs of doors.
  - e) Products of equal metal design, finish, and functions as manufactured by Baldwin, Rockwood, or McKinney will be acceptable.
  - d) Mounting of metal shall be with screws.
- N. Dust Boxes:
- 1. Dust boxes shall be installed with all jambs.
  - 2. All flush bolts unless locked into a threshold shall be provided with a dust proof strike equal to H. B. Ives 489.
- O. Rain Drip:
- 1. When exterior doors are not protected by building roof and conditions dictate, provide rain drip equal to Zero #142 4" wider than door size.
  - 2. Products of equal design, finish, and function manufactured by Reese, McKinney and Pemko will be considered equal.
- P. Thresholds:
- 1. All exterior doors shall be aluminum as manufactured by McKinney.
  - 2. Products of equal design, finish, and function manufactured by Reese, Trimco, Zero International and Pemko will be considered equal.
  - 3. Provide carpet divider fire stop thresholds at all rated doors where carpet extends through the door opening.
  - 4. Divider strip shall be Pemko (verify with Architect) or equal.
- Q. Weatherstrip:
- 1. All exterior doors shall be equipped with Pemko 303AS seal or equal. Products of equal design, finish, and function manufactured by Reese, McKinney and Zero will be considered equal.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. Consult project drawings and details and otherwise become familiar with work so that all items furnished will conform to openings to which applied. Proper labeled Hardware will be supplied and all handicapped codes and other codes will be properly met.
- B. Coordinate hardware with other allied trades such as carpentry, millwork, metal frames, etc.

### 3.2 INSTALLATION

- A. All hardware shall be installed in accordance with manufacturer's instructions.
  - 1. Except as indicated or specified otherwise, fasteners furnished with the hardware shall be used to fasten hardware in place.
  - 2. Fasten hardware to wood surfaces with full-threaded wood screws or sheet metal screws with proper finished head as supplied by the manufacturer of the hardware.
  - 3. Use:



- a) Machine screws set in expansion shields for fastening hardware to solid concrete and masonry surfaces.
  - b) Toggle bolts where required for fastening to hollow core construction.
  - c) Sex nuts and bolts for mounting closers and pulls, and labeled hardware where necessary for satisfactory installation.
- B. All painting of doors shall be done prior to installation of hardware.
- C. After installation, protect hardware from paint, stains, blemishes and other damage until acceptance of the work.
- D. Mount hardware units at heights recommended in "Recommended Locations for Builder's Hardware" by DHI except as otherwise specifically indicated or required to comply with local code or government regulations. The Architect may direct otherwise.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Cut and fit threshold and floor covers to profile of door frames, with mitered corners and hair line joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for spindles, bolts and similar items if any.
- F. Screw thresholds to substrate with No. 10 or larger screws and anchors of the proper type for permanent anchorage and of bronze or stainless steel which will not corrode in contact with the threshold metal. On heavy-duty cast metal thresholds, provide not less than 3/8" diameter screw anchors.
- G. At exterior doors, and elsewhere as indicated, set thresholds in a bed of either butyl rubber sealant or polyisobutylene mastic sealant to completely fill concealed voids and exclude moisture from every source. Do not plug drainage holes or block weeps. Remove excess sealant.

### 3.3 ADJUSTMENT AND CLEANING:

- A. It shall be the Contractor's responsibility to adjust and check each operating item of hardware and each door, to insure proper operation of function of every unit.
- 1. Lubricate moving parts with type lubrication recommended by manufacturer.
    - a) Graphite type if no other recommended.
    - b) Replace units which cannot be adjusted and lubricate to operate freely and smoothly as intended for the application made.
- B. Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make a final check and adjustment of all hardware items in such space or area.
- C. Clean and relubricate operating items as necessary to restore proper function and finish of hardware and doors.

- D. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
  - 1. Instruct Owner's personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.

#### 3.4 CONTINUED MAINTENANCE SERVICE

- A. Approximately six months after the acceptance of hardware in each area, the Installer, accompanied by the Contractor and the Hardware Supplier shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware.
- B. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
- C. Clean and lubricate operational items wherever required.
- D. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units.
- E. Provide Architect with a written report upon completion of the above.

#### 3.5 COMPLETION

- A. Inspection of Hardware and Installation:
  - 1. The hardware supplier shall visit the Project when the hardware is delivered and check it before it is installed.
  - 2. He shall visit the Project again after all the hardware has been installed and shall notify the Architect in writing, that all hardware is functioning properly and has been installed or adjusted correctly.
  - 3. The contractor shall turn over to the Owner, in book form, after completion of the Work, at least one copy of every installation instruction sheet and parts list, all tools, wrenches and templates, that come packaged with the hardware, for the Owner's use in servicing the hardware.

#### 3.6 HARDWARE SCHEDULE

- A. See attached schedule

END OF SECTION 08 71 00

SECTION 080671 – DOOR HARDWARE SCHEDULE

PART 1 - PRODUCTS

1.1 SCHEDULED DOOR HARDWARE

A. Refer to “PART 3 – EXECUTION” for required specification sections.

PART 2 -

1. MK - McKinney
2. MR - Markar
3. RU - Corbin Russwin
4. HS - HES
5. RO - Rockwood
6. NO - Norton
7. PE - Pemko
8. OT - Other
9. SU - Securitron

**Hardware Sets**

**Set: 1.0**

1 Continuous Hinge	FM300	630	MR
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	1006-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Surface Closer	CPS7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Threshold	2005AT		PE
1 Set Weatherstrip	303AS		PE
1 Door Bottom Sweep	3452CNB		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT

1 Power Supply	AQD AS REQUIRED	SU
1 Hardware	SEE NOTE BELOW	OT

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY INSIDE LEVER AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 2.0**

Hinge	TA2714	US26D	MK
1 Exit Device	ED5200 L957ET	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	9600-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Surface Closer	PR7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU
1 Hardware	SEE NOTE BELOW		OT

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELCECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY EXIT DEVICE PUSH BAR AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 3.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	1006-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY INSIDE LEVER AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 4.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 5.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 6.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Surface Closer	CPS7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 7.0**

2 Door Pull	RM3301 x DOOR HEIGT Mtg-Type 5HD MP	US32D	RO
1 Hardware	SEE NOTE BELOW		OT

NOTE: DEMOUNTABLE DOOR - BALANCE OF HARDWARE TO BE SUPPLIED BY DOOR MANUFACTURER.

,

**Set: 8.0**

1 Hardware

SEE NOTE BELOW

OT

NOTE: EXISTING DOOR - ALL EXISTING HARDWARE TO REMAIN.

END OF SECTION 080671





## SECTION 08 81 00 – GLASS GLAZING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes glazing for the following products and applications:
1. Windows. – See Window Specifications for Pre-manufactured wood, clad or aluminum window glazing types.
  2. Doors.
  3. Aluminum-framed entrances and storefronts.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
    - a. Specified Design Wind Loads: As indicated on drawings or if not indicated as required by local code.
    - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
      - 1) Load Duration: 60 seconds or less.
    - c. Minimum Glass Thickness for Exterior Lites: Not less than 6 mm (1/4”).
    - d. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for each tint color indicated throughout Project.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from a maximum change (range) of 120 deg F, 180 deg F in ambient and surface temperatures, respectively, acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
  2. For laminated-glass lites, properties are based on products of construction indicated.
  3. For insulating-glass units, properties are based on units with lites 6 mm (1/4”) thick and a nominal 1/2-inch- wide interspace.
  4. Center-of-Glass U-Values: NFRC 100 methodology using LBNL Window 6.3 computer program, expressed as Btu/ sq. ft. x h x deg F.

5. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBNL Window 6.3 computer program.
6. Solar Optical Properties: NFRC 300.

### 1.3 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: 12-inch- square, for each type of glass product indicated, other than monolithic clear float glass.
- C. Glazing Schedule: List glazing types and locations.
- D. Sealant compatibility and adhesion test reports.

### 1.4 QUALITY ASSURANCE

- A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Fire-Rated Assemblies: Where glazing products are used in fire-rated assemblies, comply with requirements of specific assembly specified in other sections of these Specifications.
  1. Door Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
  2. Window Assemblies: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 257.
- C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
  - A. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of [the SGCC] [the SGCC or another certification agency acceptable to authorities having jurisdiction] [or] [the manufacturer]. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
  - B. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.
- D. Glazing Publications: Comply with recommendations of the following, unless more stringent requirements are indicated.
  1. GANA Publications: "Glazing Manual" and "Laminated Glass Design Guide."
  2. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines."

- E. Insulating-Glass Certification Program: Permanently marked with certification label of one of the following: Insulating Glass Certification Council, Associated Laboratories, Inc National Accreditation and Management Institute.

## 1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by manufacturer, in which manufacturer agrees to furnish replacements for units that deteriorate from normal use by developing defects attributable to the manufacturing process, f.o.b. the nearest shipping point to Project site, within warranty period.
  - 1. Coated Glass:
    - a. Defects: Peeling, cracking, and other indications of degradation of metallic coating.
    - b. Warranty Period: 10 years from date of Substantial Completion.
  - 2. Insulating Glass:
    - a. Deterioration: Failure of hermetic seal resulting in obstruction of vision by dust, moisture, or film on interior surfaces of glass.
    - b. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MONOLITHIC FLOAT GLASS MATERIALS

- A. **Uncoated Clear Float Glass:** ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select). Where glass designated below, indicated on drawings, or required by building codes, provide Type I (transparent glass, flat), Class 1 (clear) glass lites complying with the following:
  - 1. Uncoated Clear Annealed Float Glass: Annealed or Kind HS (heat strengthened), Condition A (uncoated surfaces) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with performance requirements.
  - 2. Uncoated Clear Heat-Strengthened Float Glass: Kind HS (heat strengthened).
    - a. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
  - 3. Uncoated Clear Fully Tempered Float Glass: Kind FT (fully tempered).
- B. **Coated Clear Float Glass:** Provide coated glass complying with requirements designated below, indicated on drawings, or required by building code. Provide Kind HS (heat-strengthened) coated float glass in place of coated annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.
  - 1. Coated Clear Annealed Float Glass: Annealed or Kind HS (heat strengthened), Condition C (other coated glass) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with system performance requirements.
  - 2. Coated Clear Heat-Strengthened Float Glass: Condition C (other coated glass), Kind HS (heat strengthened).
  - 3. Coated Clear Fully Tempered Float Glass M: Condition C (other coated glass), Kind FT (fully tempered).

## 2.2 OTHER GLASS TYPES

- A. **Fire Rated Glazing:** Laminated Ceramic Glazing Material: Proprietary product in the form of two lites of clear ceramic glazing material laminated together to produce a laminated lite of 5/16-inch nominal thickness; polished on both surfaces; weighing 4 lb/sq. ft; and as follows:
1. Fire-Protection Rating: As indicated for assembly in which glazing material is installed, and permanently labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.
  2. Polished on both surfaces, transparent.
  3. Product: "FireLite Plus" manufactured by Nippon Electric Glass Co., Ltd. and distributed by Technical Glass Products or approved substitute.

## 2.3 INSULATING GLASS UNITS

- A. **General:** Insulating-Glass Units: Pre-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190 and complying with requirements designated below, indicated on Drawings, or required by building code.
1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated or required by code.
  2. Sealing System: Dual seal with manufacturers standard primary and secondary sealants.
  3. Spacer: Manufacturer's standard.
  4. Corner Construction: Manufacturer's standard.
  5. Overall Unit Thickness and Thickness of Each Lite: 25 mm (1") and 6 mm (1/4") Dimensions indicated are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
  6. Interspace Content: Air.
- B. **Low-E Tinted Insulating Glass:**
1. Provide glass complying with requirements designated below, indicated on drawings, or required by building code. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated or required by code.
  2. Interspace Content: Air
  3. Indoor Lite: Float glass, Class 1 (clear), Annealed, Kind HS (heat strengthened), Condition C (other coated glass), Kind FT (fully tempered), Condition C (other coated glass), Kind HS (heat strengthened), Condition A (uncoated surfaces), Kind FT (fully tempered) Condition A (uncoated surfaces).
  4. Outdoor Lite: Float glass, Class 2 (clear), Annealed, Kind HS (heat strengthened), Condition A (uncoated surfaces), Kind HS (heat strengthened), Condition C (other coated glass), Kind FT (fully tempered), Condition A (uncoated surfaces), Kind FT (fully tempered) Condition C (other coated glass).
    - a. Color to match existing building as approved by Architect
  5. Low-Emissivity Coating: Coating on second surface.
  6. Winter Nighttime U-Value: Maximum value of .28 unless otherwise noted
  7. Summer Daytime U-Value: Maximum value of .26-.27 unless otherwise noted
  8. Visible Light Transmission: 63-64% Minimum
  9. SHGC: .27
  10. Shading Coefficient: .30-.32
  11. Outdoor Visible Light Reflectance: 11-12%

12. Basis of Design: Guardian SunGuard SNX 62/27 UltraWhite/UltraWhite  
PPG Solarban 70 Starphire/Clear

#### 2.4 FILM (FLM)

- A. Provide translucent film on demountable wall partitions. See 1/A701 First Floor Finish plan for locations. See 2/A701 for heights of film on demountable wall partition.
- B. Acceptable Manufacturers:
1. LLumar
  2. Eykon, Window Film/Wall Wrap
  3. National Wallcovering, Window Films
- C. Basis of design: Manufacturer: 3M Architectural Markets, Fasara Glass Finishes. Style: Leise, SH2FGLS.

#### 2.5 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  2. Colors of Exposed Sealants: As selected by Architect from manufacturer's standard colors.
- B. Elastomeric Glazing Sealants: ASTM C 920, Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic), M, G, A, and, as applicable to glazing substrates indicated, O.
1. Glazing Sealant for Fire-Resistive Glazing Products: Sealant used in test assembly to obtain fire-protection rating.
  2. Low-Modulus Nonacid-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
  3. Medium-Modulus Neutral-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
- C. Glazing Sealant for Fire-Resistive Glazing Products: Identical to product used in test assembly to obtain fire-protection rating.

#### 2.6 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

- B. Expanded Cellular Glazing Tape: Closed-cell, PVC foam tape; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
  - 1. Type 1, for glazing applications in which tape acts as the primary sealant.
  - 2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.7 GLAZING GASKETS

- A. Compression Gaskets: Molded or extruded gaskets of type and material indicated below and of profile and hardness required to maintain watertight seal:
  - 1. Neoprene or EPDM dense compression gaskets complying with ASTM C 846.
  - 2. Silicone dense compression gaskets complying with ASTM C 1115.
  - 3. Neoprene, EPDM, or Silicone soft compression gaskets complying with ASTM C 509, Type II, black.

## 2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

## 2.9 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

## PART 3 - EXECUTION

### 3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

1. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
  2. Protect glass edges from damage during handling and installation. Remove glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance from Project site and legally dispose of off Project site.
  3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by sealant compatibility and adhesion testing.
  4. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
  5. Provide spacers for glass lites where the length plus width is larger than 50 inches unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances.
- B. Protection:
1. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface.
  2. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter.
- C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged, including natural causes, accidents, and vandalism, during construction period.

END OF SECTION 08 81 00





# Division 09 - Finishes



## SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  1. Interior gypsum wallboard.
  2. Tile backing panels.
  3. Non-load-bearing steel framing.

#### 1.2 SUBMITTALS

- A. Product Data: For each product indicated.

#### 1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

### PART 2 - PRODUCTS

#### 2.1 STEEL FRAMING

- A. Steel Framing, General: Comply with ASTM C 754 for conditions indicated.
  1. Steel Sheet Components: Metal complying with ASTM C 645 requirements.
    - a. Protective Coating:
      - 1) Interior Applications: ASTM A 653, G40, hot-dip galvanized zinc corrosion-resistant coating.
      - 2) Exterior Applications: ASTM A 653/A 653M, G60, hot-dip galvanized zinc corrosion-resistant coating.
- B. Suspended Ceiling and Soffit Framing:
  1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.
  2. Hanger Attachments to Concrete if required:
    - a. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.
  3. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
  4. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch, a minimum 1/2-inch- wide flange, and in depth indicated.

5. Furring Channels (Furring Members):
  - a. Cold Rolled Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, 3/4 inch deep.
  - b. Steel Studs: ASTM C 645, in depth indicated.
    - 1) Minimum Base Metal Thickness: 0.0179 inch
  - c. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep, unless indicated otherwise.
    - 1) Minimum Base Metal Thickness: 0.0179 inch
  - d. Resilient Furring Channels: As noted on drawings, 1/2-inch-deep members designed to reduce sound transmission, and asymmetrical with single leg.
  
- C. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  1. Products:
    - a. Armstrong World Industries, Inc.; Furring Systems/Drywall.
    - b. Chicago Metallic Corporation; Drywall Furring System.
    - c. USG Interiors, Inc.; Drywall Suspension System.
  
- D. Partition and Soffit Framing: All thicknesses are minimums; verify if drawings call for specific gauge.
  1. Steel Studs and Runners: ASTM C 645, in depth indicated.
    - a. Minimum Base Metal Thickness: 0.0200 mil.
  2. Deflection Design Options:
    - a. Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs. Refer to manufacturer's recommendations for use in axial load-bearing stud conditions or above continuous window spandrels.
      - 1) Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch deep flanges. Requires U-Channels and angles installed continuously throughout the uppermost punch-outs to align the studs vertically within the plane of the wall.
      - 2) Slotted Deflection Track: ASTM C 645 Top runner with 2 1/2" deep flanges with vertical slots.
  3. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
    - a. Minimum Base Metal Thickness: 0.0179 inch.
  4. Cold-Rolled Channel Bridging: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, and in depth indicated.
    - a. Clip Angle: 1-1/2 by 1-1/2 inch, 0.068-inch-thick, galvanized steel.
  5. Hat-Shaped, Rigid Furring Channels: ASTM C 645, in depth indicated.
    - a. Minimum Base Metal Thickness: 0.0179 inch
  6. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission. Asymmetrical or hat shaped, with face attached to single flange by a slotted leg (web) or attached to two flanges by slotted or expanded metal legs.
  7. Cold-Rolled Furring Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, and in depth indicated.
    - a. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch.
    - b. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch-diameter wire, or double strand of 0.0475-inch diameter wire.

8. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum bare metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.
9. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power and other properties required to fasten steel members to substrates.

## 2.2 PANEL PRODUCTS

- A. Panel Size, General: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 1396.
  1. Regular Type: In thickness indicated and with long edges tapered and featured (rounded or beveled).
  2. Type X: In thickness indicated and with long edges tapered and featured (rounded or beveled).
- C. Flexible Gypsum Wallboard: ASTM C 1396, manufactured to bend to fit tight radii and to be more flexible than standard regular-type panels of the same thickness, 1/4 inch thick, and with long edges tapered. Apply in double layer at curved assemblies.
- D. Abuse-Resistant Gypsum Wallboard: ASTM C 1396, manufactured to produce greater resistance to surface indentation and through-penetration per ASTM C1629 than standard gypsum panels, with core type and in thickness indicated, and with long edges tapered.
  1. Products:
    - a. National Gypsum Company; Gold Bond Hi-Abuse Wallboard.
    - b. United States Gypsum Co.; SHEETROCK Brand Abuse-Resistant Gypsum Panels.
    - c. American Gypsum Company, M-Bloc AR with mold and moisture resistance.
- E. Exterior Gypsum Sheathing Panels for Walls, Parapets, Ceilings and Soffits:
  1. Exterior Glass-Mat Gypsum Soffit and Ceiling Board: ASTM C 1396/C 1396M and C 1177/C 1177M, with core type and in thickness indicated and with manufacturer's standard edges.
    - a. Product: G-P Gypsum Corp; Dens-Armor Plus. Install manufacturer's recommended taping system over joints.
  2. Glass-Mat Gypsum Sheathing Board (exterior walls): ASTM C 1177/C 1177M, with core type and in thickness indicated.
    - a. Products:
      - 1) G-P Gypsum Corp; Dens-Glass Gold. Install manufacturer's recommended taping system over joints.
      - 2) CertainTeed Gypsum; GlasRoc high-performance sheathing. Install manufacturer's recommended taping system over joints.
      - 3) United States Gypsum Co.; SECUROCK Glass-mat sheathing. Install manufacturer's recommended taping system over joints.
      - 4) American Gypsum Company, M-Glass Exterior Sheathing. Install manufacturer's recommended taping system over joints.
  3. Glass-Mat Gypsum Sheathing Board (roof side of parapets): ASTM C 1177/C 1177M, with core type and in thickness indicated.
    - a. Product: G-P Gypsum Corp; Dens-Deck Roof Board.
    - b. United States Gypsum Co.; SECUROCK Glass-Mat Roof Board.

- F. Tile Backing Panels:
1. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M, with core type and in thickness indicated.
  2. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with core type and in thickness indicated.
    - a. Product: G-P Gypsum Corp.; Dens-Shield Tile Backer.
    - b. Product: CertainTeed Gypsum; DiamondBack Tile Backer.
    - c. Or approved equal.

## 2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Corner bead: Use at outside corners.
  2. Bullnose Bead: Use at outside corners.
  3. LC-Bead: Use at exposed panel edges.
  4. L-Bead: Use where indicated.
  5. U-Bead: Use where indicated.
  6. Expansion (Control) Joint: Use as noted below and where indicated on drawings.
    - a. Ceilings
      - 1) Install control joints in areas exceeding 2500 sq. ft. (232 sq. m).
      - 2) Space control joints not more than 50 feet (15.2 m) o.c.
      - 3) Install control joints where ceiling framing or furring changes direction.
    - b. Partitions and Furring
      - 1) Install control joints in partitions and wall furring runs exceeding 30 feet.
      - 2) Space control joints not more than 30 feet o.c.
      - 3) Install control joints in furred assemblies where control joints occur in base exterior wall
  7. Curved-Edge Corner bead: With notched or flexible flanges; use at curved openings.
- B. Exterior Trim: ASTM C 1047, hot-dip galvanized steel sheet or rolled zinc.
1. Corner bead: Use at outside corners.
  2. LC-Bead: Use at exposed panel edges.
  3. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening. Use as noted below and where indicated on drawings.
    - a. Ceilings
      - 1) Install control joints in areas exceeding 2500 sq. ft. (232 sq. m).
      - 2) Space control joints not more than 50 feet (15.2 m) o.c.
      - 3) Install control joints where ceiling framing or furring changes direction.
- C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
1. Products:
    - a. Fry Reglet Corp.; As indicated by designation on Drawings
    - b. Gordon, Inc.; As indicated by designation on Drawings
    - c. MM Systems Corporation; As indicated by designation on Drawings
    - d. Pittcon Industries; As indicated by designation on Drawings
  2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, alloy 6063-T5.
  3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified

## 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Glass-Mat Gypsum Soffit Board: As recommended by panel manufacturer.
  - 3. Glass-Mat Gypsum Sheathing Board: As recommended by panel manufacturer.
  - 4. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, flanges of trim accessories, and fasteners, use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Exterior Applications:
  - 1. Glass-Mat Gypsum Soffit Board: As recommended by manufacturer.
  - 2. Glass-Mat Gypsum Sheathing Board: As recommended by manufacturer.
- E. Joint Compound for Tile Backing Panels:
  - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping and setting-type, sandable topping compounds.
  - 2. Glass-Mat, Water-Resistant Backing Panel: As recommended by manufacturer.
  - 3. Cementitious Backer Units: As recommended by manufacturer.

## 2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Products:
    - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
    - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
- C. Acoustical Sealant for Concealed Joints: Nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
  - 1. Products:
    - a. Ohio Sealants, Inc.; Pro-Series SC-170 Rubber Base Sound Sealant.
    - b. Pecora Corp.; BA-98.
    - c. Tremco, Inc.; Tremco Acoustical Sealant.
- D. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- E. Sill Seal at Exterior Walls:
1. Sill Seal: Provide flexible polyethylene foam gasketing strip between concrete foundation and sill plate. Strip shall be .25" x 5.5" for 6" metal stud walls. Provide "Weathmate Sill Seal" by Dow Building Solutions or equal.
- F. Sound Attenuation Blankets: Refer to Division 07 Section "Blanket Insulation".
- G. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

### PART 3 - EXECUTION

#### 3.1 NON-LOAD-BEARING STEEL FRAMING INSTALLATION

- A. General: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Suspended Ceiling and Soffit Framing:
1. Suspend ceiling hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Attach hangers to structural members. Do not support ceilings from or attach hangers to permanent metal forms, steel deck tabs, steel roof decks, ducts, pipes, or conduit.
  4. Screw furring to framing.
  5. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.
  6. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- C. Partition and Soffit Framing:
1. Where studs are installed directly against exterior walls, install isolation strip between studs and wall.
  2. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
  3. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb, unless otherwise indicated.



4. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- D. Z-Furring Members: Erect insulation vertically and hold in place with Z-furring members.
1. Until gypsum board is installed, hold insulation in place with 10-inch staples fabricated from 0.0625-inch diameter, tie wire and inserted through slot in web of member.

### 3.2 PANEL PRODUCT INSTALLATION

- A. Gypsum Board: Comply with ASTM C 840 and GA-216.
1. Space fasteners in panels that are tile substrates a maximum of 8 inches on center.
  2. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  3. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
    - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
  4. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  5. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
  6. Multilayer Fastening Methods: Fasten base layers; and face layers separately to supports with screws; fasten face layers with adhesive and supplementary fasteners; or, as required to comply with requirements for fire-resistance-rated assemblies indicated.
  7. Laminating to Substrate: Comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- B. Exterior Ceilings and Soffits: Apply exterior gypsum panels perpendicular to supports, with end joints staggered and located over supports.
1. Fasten with corrosion-resistant screws.
- C. Tile Backing Panels:
1. Water-Resistant Gypsum Backing Board: Install with 1/4-inch gap where panels abut other construction or penetrations.
  2. Glass-Mat, Water-Resistant Backing Panel: Install with 1/4-inch gap where panels abut other construction or penetrations.
  3. Cementitious Backer Unit Application: ANSI A108.11.

### 3.3 FINISHING

- A. Installing Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Finishing Gypsum Board Panels: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.

1. Prefill open joints, rounded or beveled edges, and damaged surface areas.
  2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
  3. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
  4. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
- C. Cementitious Backer Units: Finish according to manufacturer's written instructions.
- D. Label all rated walls above ceilings or below raised access floors using verbiage, lettering, size, color and spacing as required by code and AHJ.
- E. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840 and GA 214, for locations indicated:
1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
  2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile and where indicated.
  3. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges of all panel surfaces that will be exposed to view, unless Level 5 finish is otherwise indicated.
  4. Level 5: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges and apply a final skim coat over the entire surface of panels that will be exposed to view. Use Level 5 for gypsum panel surfaces to be finished with gloss, semi-gloss or enamel paint unless otherwise indicated.

END OF SECTION 09 21 16

## SECTION 09 30 00 - TILING

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. Provide all of the labor, materials, equipment and services to furnish and install the tile and accessories as indicated on the Drawings and as specified herein.
- B. This section includes the following:
  - 1. Glazed tile
  - 2. Porcelain tile
  - 3. Stone thresholds.
  - 4. Waterproof membrane.
  - 5. Crack-isolation membrane.
  - 6. Tile backing panels.
  - 7. Metal edge/transition.

#### 1.2 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- D. Face Size: Actual tile size, (minor facial dimension as measured per ASTM C 499) excluding spacer lugs.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Dynamic Coefficient of Friction: For tile installed on walkway, surfaces, provide products that meet the requirements of ANSI A137.1-2012 testing method, the DCOF Acu Test.
  - 1. Minimum DCOF: 0.42 for level interior spaces expected to be walked upon when wet.

#### 1.4 PRE-INSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
  - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

#### 1.5 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, comply with the following:
  - 1. "Handbook for Ceramic Tile Installation" (latest edition) as published by the Tile Council of America, Inc., TCNA.
  - 2. "American National Standard Specifications for Ceramic Tile"

(ANSI 108 Series of tile installation and in ANSI 137.1 and A137.3-latest edition).

3. ANSI Specifications: American National Standard Specification for Installation of Ceramic Tile. Reference number is at specific installation area.

- B. **Tile contractor, by commencing the work of this section, assumes overall responsibility to assure that all assemblies, components and parts shown or required within the work of this section comply with contract documents and are compatible with each other and with the conditions and expected use.**
- C. Pre-Installation Meeting: Prior to tile installation, conduct a pre-installation project meeting. Contractor, Subcontractor, Material Suppliers, Manufacturer representative, Architect and Owner Representative shall be notified of the meeting.
- D. Source Limitations for Tile: Obtain all tile and Setting and Grouting Material from one source.
- E. Source Limitations for Setting and Grouting Material: obtain ingredients of a uniform quality for each mortar, adhesive and grout component from a single manufacturer and each aggregate from one source.
- F. Source Limitations for other Products: Obtain each of the following products specified in this section through one source from a single manufacturer. If manufacturer has products in multiple categories, then that manufacturer must be used for all.
  1. Stone Thresholds
  2. Waterproofing
  3. Joint Sealants or Movement Joint Profiles
  4. Metal edge strip
  5. Uncoupling or Anti-Fracture Membrane
- G. Installer Qualification: Engage an installer that has a minimum of five years' commercial experience with tile installations similar in material, design and scope to that indicated.

#### 1.6 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  1. Physical samples:
    - a. Tile and tile accessory pieces: Submit two (2) samples of each type and color specified.
    - b. Grout.
    - c. Metal edge strips in 6-inch lengths.
  2. Master Grade Certificate, signed by an officer of the firm manufacturing the tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the Project.
- B. Maintenance and operation manual: Submit tile manufacturer's maintenance guides for Owner's use in maintaining all tile herein specified.
- C. Shop Drawings: Show location of each type of tile and tile pattern. Show widths, details and locations of expansion, contraction, control and isolation joints in tile substrates and finished tile surfaces.
- D. Product Data: For each product indicated.

- E. Qualification Data: For firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

#### 1.7 PRODUCT HANDLING:

- A. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.

#### 1.8 EXTRA MATERIALS:

- A. Deliver extra materials to Site. Furnish extra materials described below that match products installed, and are packaged with protective covering for storage, and are identified with labels describing contents, name of project and the project's address.
  - 1. Tile and Trim Units: Furnish 1 box of full size units for each type, composition, color, pattern, and size indicated.
  - 2. This material shall not be available to the Contractor for replacement goods within the Contractor's General Warranty period for the Work.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  - 1. Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product aesthetically closely matching, as well as matching listed performance characteristics of another name or unnamed manufacturer.

#### 2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
  - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI Standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
  - 1. As selected by Architect from manufacturer's full range.
- D. Factory Blending: For tile exhibiting color variations within ranges selected during sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved samples.

- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
  - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

### 2.3 FLOOR TILE PRODUCTS

- A. Manufacturers:
  - 1. Basis of Design: Florida Tile Inc.
  - 2. Crossville Ceramics Company, L.P.
  - 3. Dal tile; Div. of Dal-Tile International Inc.
  - 4. StonePeaks Ceramics
- B. FLOOR TILE – (PT-1) UNGLAZED PORCELAIN TILE:
  - 1. (PT-1) Basis-of-Design: Florida Tile: Sequence product #AFG-AT3RF, color Breeze.
  - 2. (TR-5) Basis-of-Design: Schluter; DILEX-AHK, color satin anodized aluminum. (TR-5) Cove floor to wall tile. See details 1/A704.
  - 3. Grout: (GR-1) Mapei – Kerapoxy, Epoxy, #09 Gray.
  - 4. Composition: U.S. manufacturer, unglazed color body, mosaic tile. Impervious body, tile with 1/2% absorption. 40% pre-consumer recycle content with Microban.
  - 5. Size: 24" X 48" Rectangle.
  - 6. Thickness: 9 mm, rectified edge.
  - 7. Face: Matte
  - 8. DFOC: Not less than 0.42
  - 9. Breaking Strength: 490 lbf. Avg.
  - 10. Installation Pattern: Square Grid Pattern.
  - 11. Installation: ANSI A108.0 & 2A118.10 and F121 thick set tile area.
  - 12. General Substrate Tolerance: Floors must meet the ANSI A108.02 and MIA's DSDM. The Finish flatness allowable deviation for ceramic tile installation is 1/4" inch in 10 feet from a required plane according to ANSI.

### 2.4 WALL TILE PRODUCTS

- A. WALL TILE – (WT-1) GLAZED PORCELAIN WALL TILE:
  - 1. (WT-1) Basis-of-Design: Florida Tile, Emotive- Listello, product # FTIEMV1G/L3X12, color: Astonished white, glossy finish.
  - 2. (TR-3 or TR-6) Basis-of-Design: Schluter; Schiene or Jolly, color stainless steel 304. Exposed edge of wall tile. See detail 1/A704.
  - 3. Grout: (GR-2) Mapei – Keracolor S, #02 Pewter.
  - 4. Composition: U.S. manufacturer, textured glazed ceramic wall tile.
  - 5. Size: (WT-1): 3" X 12".
  - 6. Thickness: 9 mm, rectified.
  - 7. Face: Surface Hardness 5 Mohs
  - 8. Breaking Strength: 150 lbf. Avg.

10. Installation Pattern: Horizontal 1/3 offset running bond.
11. Installation: TCNA W202I for LFT/LHT Medium Bed Plus – no sag.

## 2.5 TILE ACCESSORIES & TRIM:

### A. METAL FINISHING AND EDGE PROTECTION PROFILE FOR WALLS & FLOORS:

1. Description: Basis-of-Design - (TR-3 & TR-6) Schluter; L-shaped profile with 1/8 inch (3.2 mm) wide top section vertical wall section that together form the visible surface, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.

## 2.6 TILE BACKING PANELS:

- ### A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, Type A, in maximum lengths available to minimize end to end butt joints.
1. Thickness: 5/8"

## 2.7 CRACK ISOLATION MEMBRANE / UNCOUPLING MEMBRANE:

- ### A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10/ANSI A118.12 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer. Provide 125 full spread on grade slab and F128 on 2<sup>nd</sup> floor and above and all full coverage applications.

- ### B. F125 Full Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

1. Basis-of-Design Products: Subject to compliance with requirements, provide "Mapelastic CI" crack-isolation membrane as manufactured by Mapei Corporation or comparable product offered by one of the following:
  - a. Custom Building Products.; "RedGard Waterproofing and Crack Prevention Membrane."
  - b. Laticrete International, Inc.; "Hydro Ban."

### C. UNCOUPLING MEMBRANE

1. F 128: Uncoupling Membrane: Description: Basis of Design: Schluter Systems L.P, Ditra, DitraXL or Ditra Duo. 1/8 inch (3 mm) thick, orange, high-density polyethylene membrane with a grid structure of 1/2 inch by 1/2 inch (12 mm by 12 mm) square cavities, each cut back in a dovetail configuration, and a polypropylene anchoring fleece laminated to its underside. Conforms to definition for uncoupling membranes in the Tile Council of North America Handbook for Ceramic Tile Installation and is listed by cUPC to meet or exceed the requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).
2. Waterproofing seaming membrane:
  - a. Provide Seams and Corners material 0.004 inch (0.1 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides.

## 2.8 WATERPROOFING MEMBRANES (SHOWER AREAS)

- ### A. General: Manufacturer's standard product, selected from the following, which complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

- B. Sheet Applied Waterproofing Membrane  
Description: 0.008 inch (0.2 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides, which is listed by cUPC to meet or exceed requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).
1. Product: Schluter Systems L.P; Kerdi.
- C. Bonding Adhesive: Type recommended by sheet membrane manufacturer to suit application
1. Basis of Design: Schluter Systems L.P: Schluter- ALL SET Modified Thin Set Mortar
- D. Seam Sealant: Type recommended by sheet membrane manufacturer.
- 2.9 INSTALLATION TYPE - SETTING BED:
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Bonsal American, an Oldcastle company.
  2. Laticrete International, Inc.
  3. MAPEI Corporation.
  4. TEC; H.B. Fuller Construction Products Inc.
- B. Latex-Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
1. Cleavage Membrane: Asphalt felt, ASTM D 226/d 226M, Type I (No. 15): or polyethylene sheeting, ASTM D 4397, 4.0 mils thick.
  2. Reinforcing Wire Fabric: Galvanized, welded-wire fabric, 2 by 2 inches by 0.062-inch diameter; comply with ASTM A 185/A 185M and ASTM A 82/A 82M, except for minimum wire size.
  3. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.
- C. High-Performance Latex-Portland Cement Mortar (Thinset): ANSI A118.15.
1. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
  2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.15.
- D. High-Performance Medium-Bed, Latex-Portland Cement Mortar: Comply with requirements in ANSI A118.15. Provide product that is approved by manufacturer for application thickness of 3/4 inch.
1. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
- E. Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3.
1. Products: Subject to compliance with requirements, provide one of the following:



- a. Custom Building Products; CEG Lite.
  - b. Laticrete International Inc.; SpectraLock Pro Premium.
  - c. MAPEI Corporation; Kerapoxy.
  - d. TEC: H.B. Fuller Construction Products Inc.; Accucolor EFX mortar.
2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

## 2.10 GROUT:

### A. High-Performance Tile Grout: ANSI A118.7.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. ARDEX Americas.
  - b. Custom Building Products; Prism.
  - c. Laticrete International Inc.; Perm color Select.
  - d. MAPEI Corporation; Ultra color Plus.
  - e. TEC: H.B. Fuller Construction Products Inc.; Power Grout.
2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
3. Color: As selected by Architect from manufacturer's full range.

### B. Water-Cleanable Epoxy Grout: ANSI A118.3.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Custom Building Products; CEG Lite.
  - b. Laticrete International, Inc.; Spectralock Pro Premium.
  - c. MAPEI Corporation; Kerapoxy.
  - d. TEC: H.B. Fuller Construction Products Inc.; Accucolor EFX.
2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

## 2.11 THRESHOLD & TRANSITIONS:

### A. Marble: White Carrara, polished exposed surface; Marble threshold shall be 2" wide and of a thickness appropriate for thin-set application

### B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.

1. Description: Basis of Design: Schluter Systems L-shaped profile with 1/8 inch (3.2 mm) wide visible surface integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.

2. Description: Basis of Design: Schluter Systems profile with sloped exposed surface, 1/4 inch (6 mm) deep channel below exposed surface, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
3. Description: Basis of Design: Schluter Systems profile with sloped exposed surface, 5/32 inch (4 mm) tall leading edge, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.

#### 2.12 MOVEMENT JOINTS AND COVE-SHAPED PROFILES

- A. Description: Basis of Design: Schluter Systems L.P: "DILEX" profile with integrated aluminum, trapezoid-perforated anchoring legs, connected by grip bars to a 1/4 inch (6 mm) wide soft PVC movement zone, which together form the visible surface.
- B. Description: Basis of Design: Schluter Systems L.P: "DILEX" profile with integrated trapezoid-perforated anchoring legs, connected by a 7/16 inch (11 mm) wide replaceable thermoplastic rubber movement zone, which together form the visible surface.

#### 2.13 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; half- hard brass or white zinc alloy exposed-edge material as selected by Architect.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- D. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.
  1. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- E. Joint Sealant: Silicone, S, NS, 25, T, NT: Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, Shore A hardness not less than 35, traffic- and non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Uses T and NT.

#### 2.14 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
  2. Verify substrates comply with the flatness tolerances required by ANSI A108.01 and the following:
    - a. Tile with no edge larger than 15 inches; 1/4-inch in 10 feet.
    - b. Large Format Tile (15 inches or more on a side): 1/8 inch in 10 feet.
  3. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
    - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
    - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
  4. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
  5. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

## 3.3 CERAMIC TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:

- a. Tile floors in wet areas.
  - b. Tile floors in laundries.
  - c. Tile floors consisting of tiles 8 by 8 inches or larger.
  - d. Tile floors consisting of rib-backed tiles.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
  2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
  3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- G. Joint Widths: Unless otherwise indicated, install tile with the joint widths the narrowest joint recommended in writing by tile manufacturer.
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them and of equal or greater widths.
  2. Where tilework abuts restraining surfaces such as perimeter walls, curbs, columns, and ceilings.
  3. Where there is a change in substrate material.
  4. Interior Tilework: 20 to 25 feet in each direction.
  5. Above ground concrete substrates: 8 to 12 feet in each direction.
  6. Interior tilework exposed to direct sunlight: 8 to 12 feet in each direction.
  7. Interior tilework exposed to moisture: 8 to 12 feet in each direction.
- J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thinset).

2. Do not extend cleavage membrane waterproofing or crack isolation membrane under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on cleavage membrane waterproofing or crack isolation membrane with elastomeric sealant.

K. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated, and at locations indicated.

L. Floor Sealer: Apply floor sealer to cementitious grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

### 3.4 TILE BACKING PANEL INSTALLATION

- A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.

### 3.5 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

1. In all Toilet Rooms, Shower Rooms and Locker Rooms, cover entire floor with waterproofing/anti-fracture membrane and fabric reinforcement, extend waterproofing/anti-fracture membrane and fabric reinforcement up all walls a minimum of 4 inches. Waterproof all pipe and drain penetrations through membrane.

- a. At showers, including changing area, install waterproofing/anti-fracture membrane and fabric reinforcement full height on walls under ceramic tile and lap over waterproof/anti-fracture membrane at base.

1. Install fabric reinforcing according to manufacturer's instructions.

- b. At all pipe and drain penetrations through waterproofing/anti-fracture membrane comply with the following:

1. Install fabric reinforcing according to manufacturer's instructions.

2. Extend waterproofing/anti-fracture membrane and fabric reinforcement into flange of floor drains.

3. Extend waterproofing anti-fracture membrane and fabric reinforcement into pipe and conduit penetrations through waterproofing.

- B. Do not install tile over waterproofing/anti-fracture membrane until waterproofing/antifracture has cured and been tested to determine that it is watertight.

### 3.6 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

- B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

- C. Fabric-Reinforced, Modified-Bituminous Sheet: Use where required to bridge existing cracks and to relocate crack control joints to coordinate with nearest tile grout joint: Install in accordance with

manufacturer's instructions. Clean and prime concrete surface and allow primer to dry. Set self-adhering sheet in place, remove release sheet, and roll sheet to ensure full contact with substrate.

### 3.7 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

### 3.8 PROTECTION

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
  - 1. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

### 3.9 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor recessed minimum 2 inches and as required for slopes:
  - 1. Ceramic Tile Installation: TCNA F121 with F112 bonded wire-reinforced mortar bed; water-cleanable, tile-setting epoxy on fluid-applied waterproofing membrane over cured cement mortar bed bonded to concrete subfloor on ground.
    - a. Ceramic Tile Type: Unglazed quarry tile and base.
    - b. Grout: Industrial grade, chemical resistant, water-cleanable epoxy grout ANSI 108.6 and ANSI 118.5.
    - c. Application: Food service areas with slope to drain, including adjacent toilet room. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  - 2. Ceramic Tile Installation: TCNA F122; thinset mortar on full waterproofing membrane.
    - a. Ceramic Tile Type: Unglazed quarry tile and base.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Industrial grade, chemical resistant, water-cleanable epoxy grout ANSI 108.6 and ANSI 118.5.
    - d. Fluid-applied waterproofing membrane.
    - e. Application: Food service areas without slope to drain, including adjacent toilet room. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.

3. Ceramic Tile Installation: TCNA F121 with F112 bonded wire-reinforced mortar bed; fluid-applied waterproofing membrane over cured cement mortar bed bonded to concrete subfloor on ground.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Bond Coat for Cured-Bed Method: Medium-bed latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout ANSI 108.6.
    - d. Fluid-applied waterproofing membrane.
    - e. Application: Toilet rooms on slab on ground with slope to drain. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  4. Ceramic Tile Installation: TCNA F122; medium-bed mortar on full waterproofing membrane.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Mortar: Medium-bed, latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout ANSI 108.6.
    - d. Fluid-applied waterproofing membrane.
    - e. Application: Toilet rooms on above-ground slab without slope to drain. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  5. Ceramic Tile Installation: TCNA F125-Full; medium-bed mortar on full crack isolation membrane.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Thinset Mortar: Medium-bed, latex- portland cement mortar.
    - c. Fluid-applied crack isolation membrane.
    - d. Grout: High-performance sanded grout.
    - e. Application: Dry areas.
- B. Interior Wall Installations, Masonry or Concrete:
1. Ceramic Tile Installation: TCNA W202; thinset mortar.
    - a. Ceramic Tile Type: Glazed wall tile.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
- C. Interior Wall Installations, Metal Studs or Furring:
1. Ceramic Tile Installation (WT-1): TCNA W244C or TCNA W244F; thin-set mortar on cementitious backer units.
    - a. Ceramic Tile Type: Glazed wall tile.
    - b. Thin-set Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
- D. Shower Receptor and Wall Installations:
1. Ceramic Tile Installation: TCNA B421; thinset mortar on waterproof membrane over solid backing.
    - a. Ceramic Tile Type: Glazed wall tile.
    - b. Ceramic Tile Type: Porcelain tile at receptor floor.
    - c. Thinset Mortar: Latex-portland cement mortar.
    - d. Grout: Water-cleanable epoxy grout.

TILING

SECTION 09 30 00

END OF SECTION 09 30 00



## SECTION 09 51 00 - ACOUSTICAL CEILINGS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. The work covered by this section consists of furnishing all labor and materials for the complete installation of acoustical tile ceilings.

#### 1.2 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations published by the Ceilings and Interior Systems Contracting Association and the requirements of ASTM C636 (latest edition).
- B. Seismic Loads: Design and size components to withstand seismic loads in accordance with the local governing building code, for the seismic design category as indicated on the structural drawings.
- C. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Class **A** according to ASTM E1264.
  - 2. Smoke-Developed Index: **50** or less.
  - 3. Flame Spread Index **25** or less.

#### 1.3 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Submit manufacturer's project specifications and installation instructions for each type of acoustical panel and suspension system required, including certified laboratory test reports and other data necessary to show compliance with these specifications.
  - 2. Include manufacturer's recommendations for cleaning and refinishing acoustical panels, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.
  - 3. Shop drawings, showing layout of each type of ceiling system in relation to surrounding structure, mechanical work (which shall include, but not be limited to, duct work and piping), lighting and electrical work, and any other pertinent fixtures and equipment. Drawings shall also show location of accessible panels. The reproduction of Architect's Drawings as the basis of these shop drawings will not be acceptable.
  - 4. Physical Samples: Furnish one sample of each type of ceiling board or tile and exposed grid in finish and pattern specified.

#### 1.4 JOB CONDITIONS:

- A. Do not install interior acoustical panel ceilings until space enclosed and weatherproof, and until work above ceilings completed, and unit ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

## 1.5 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Ceiling Panels: 2 unopened boxes for each type indicated.
- B. This material shall not be available to the contractor for replacement goods within the building warranty period.

## PART 2 - PRODUCTS

## 2.1 ACOUSTICAL CEILING:

- A. Manufacturers:
1. USG
  2. Armstrong
  3. CertainTeed, Celotex.
  4. Or approved equal
- B. Ceiling Type's/Acoustical Ceiling Panels:
1. Ceiling Type #1: ACT-1: 2'X2' Acoustical ceiling tile with beveled tegular edge and 9/16" suspension grid.
    - a. Armstrong; Ultima, Beveled Tegular edge lay-in, No. 1912 (White), 24"x24"x3/4", (White) with 9/16" Superfine Exposed Grid.
    - b. CertainTeed; Symphony M Tegular edge lay-in, No. 1222F-IOF-1 (White), 24"x24"x3/4" (White) with 9/16" Narrow Reveal Grid.
    - c. USG: Mars ClimaPlus. 86985, FLB (Fineline Beveled Edge), (White), 24"x24"x3/4" with 9/16" Centricitee DXT Grid.
  2. Ceiling TYPE #2: ACT-2: 2'X2' Acoustical ceiling tile High .80 NRC and .35+ CAC with tegular edge lay-in with 9/16" suspension grid. Provide 3 1/2" sound batt insulation above the ceiling tiles.
    - a. Armstrong; Ultima, Beveled Tegular edge lay-in, No. 1942 (White), 24"x24"x7/8", (White) with 9/16" Superfine Exposed Grid.
    - b. CertainTeed; Symphony M Tegular edge lay-in, No. 1222BF-85-1 (White), 24"x24"x7/8" (White) with 9/16" Narrow Reveal Grid.
    - c. USG: Mars ClimaPlus. 87100, FLB (Fineline Beveled Edge), (White), 24"x24"x7/8" with 9/16" Centricitee DXT Grid.
- C. Suspension System Components: Main beams and cross tees in accordance with the requirements of the local governing building code, for seismic design category D, E and F as described in ESR-1308.
1. Structural Classification: ASTM C 635, Heavy Duty.
  2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
  3. Represented Systems: Prelude XL 15/16" as manufactured by Armstrong World Industries.
  4. High Use Kitchen Application ACT-3: Components shall be formed from commercial quality hot-dipped galvanized steel with aluminum cap.
    - a. Attachment Devices: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F.

- b. Wire for Hangers and Ties: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F.
- c. Wall Moldings: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F as described in ESR-1308.
  - 1) Nominal 7/8 inch x 7/8 inch hemmed, pre-finished angle molding (7800)

D. Accessories:

- 1. BERC2 – 2 inch Beam End Retaining Clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568 – used to join main beam or cross tee to wall molding.

2.2 OTHER MATERIALS:

- A. All other materials, not specifically described but required for a complete and proper installation of the suspended acoustical ceiling, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS:

- A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that suspended acoustical ceiling may be installed in accordance with the original design, all codes and regulations, the manufacturer's current recommendations and the approved submittals.
- C. In the event of discrepancy, immediately notify the Architect.
- D. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 COORDINATION WITH MECHANICAL AND ELECTRICAL:

- A. Coordinate with the requirements of other Trades. Use all means necessary to interface with adjacent materials.
- B. Where recessed lighting fixtures are installed in suspension system, consult with the fixture manufacturer prior to preparation of shop drawings so that the work of this Section shall be installed ready to receive the lighting fixtures. Modify the suspension system members adjacent to fixture locations as approved by the Architect and to the extent necessary to accommodate the fixtures.
- C. In the event lighting fixtures or air distribution or return air equipment other than those specified should be substituted under their respective Sections and/or Drawings and should the substituted fixtures require more extensive modifications, the Contractor shall make such required additional modifications and any additional cost shall be paid by the Contractor.
- D. Where wide or deep air conditioning ducts above suspended acoustical ceilings interfere with suspension hangers, provide independent framing below the duct work to support the ceiling as an obligation under this Section. Framing shall meet the approval of the Architect. Framing shall be supported from floor or roof structure above and shall in no case be attached to the duct work, piping or conduit.

## 3.3 SUSPENDED CEILING INSTALLATION:

- A. Comply with ASTM C 636 as applicable to acoustical panel ceilings, except to extent more stringent requirements indicated or required for compliance with governing regulations or fire resistance ratings.
- B. Suspend ceiling hangers from building structural members only, and only as indicated.
  - 1. Secure to structure, including intermediate framing members, by attaching to metal clips designed for type of member involved, or where possible, by looping and wire-tying directly to members.
- C. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hanger not more than 6" from ends of each member.
- D. For the support of light fixtures, the fixture load shall be supported by supplemental hangers within 6" of each corner, or the fixture shall be supported separately.

## 3.4 MOLDINGS:

- A. Cope exposed flanges of intersecting members so that flange faces will be flush.
- B. Install edge moldings of type indicated at edges of each acoustical panel ceiling area, and at locations where edge of panel would otherwise be exposed after completion of work.
- C. Secure moldings to building construction by fastening through holes drilled in vertical leg. Space holes not more than 3" from each end and not more than 16" o.c. Draw-up fasteners for tight set against vertical surfaces.
- D. Miter corners of moldings accurately to provide hairline joints.
- E. Level moldings with ceiling suspension system, to level tolerance of 1/8" in 12'-0".

## 3.5 ACOUSTICAL PANEL INSTALLATION:

- A. Plan each layout to balance border widths at opposite edges of each ceiling area. Avoid use of less-than-half width units wherever possible. Comply with Architect's reflected ceiling plans to greatest extent possible.
- B. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members.
- C. Scribe and cut panels for accurate fit at borders and at interruptions and penetrations by other work through ceilings.

## 3.6 CLEANING AND PROTECTION:

- A. Clean exposed surfaces of acoustical panels and of trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- B. Institute required protection for acoustical panel ceilings, including temperature and humidity

limitations and dust control, so that work will be without damage and deterioration at time of substantial completion.

END OF SECTION

09 51 00

## SECTION 096513 - RESILIENT BASE AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Thermoset rubber & thermoplastic base.
  - 2. Homogeneous Composition of Polyvinyl Chloride (PVC) molding accessories.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

### PART 2 - PRODUCTS

#### 2.1 THERMOPLASTIC & THERMOSET RUBBER BASE – (B).

- A. Subject to compliance of all specifications in this section.  
Acceptable manufacturers:
  - 1. Flexco
  - 2. Mannington
  - 3. Allstate Rubber
  - 4. Roppe
- B. Product Standard: ASTM F1861, Type TS thermoset rubber.
  - 1. Basis of Design: Tarkett. TSB-63-4 TOE, 63 Burnt Umber.
  - 2. Style; see A700 Room Finish Schedule for location:
    - a. (B-1) - Cove base.
      - 1. 0.125 thick.
      - 2. 4" High.
      - 3. Minimum length: 8'-0" or full coil length
      - 4. Inside corners: Score back for a tight to wall (no gap) install or a tight miter acceptable.
      - 5. Outside corners: Score back for a tight to wall (no gap) install. Snipped cove is acceptable if required.
- C. Product Standard: ASTM F1861, Type TP thermoplastic.
  - 1. Basis of Design: Tarkett, MW-63-F, 63 Burnt Umber.
  - 2. Style; see A700 Room Finish Schedule for location:
    - a. (B-2) - Reveal Profile (Sculpture "Wood Look Profile") Base.
      - 1. 0.25 thick.
      - 2. 4.25" High.
      - 3. A 45° angular top and a 7/32" (5.5mm) wide surface reveal.

4. 8 ft. lengths.
5. Mitered inside and outside corners.
2. Colors: As indicated by manufacturer's designations and listed on A700 Finish Legend.
3. Provide "Color Rite" (or equal manufacturer) matching caulk if needed to finish and create acceptable final presentation of all trims.

## 2.2 RUBBER MOLDING ACCESSORY (TR)

- A. Acceptable manufacturers:
  1. Roppe Corporation
  2. VIP Corporation
- B. (TR-1) Description, Tarkett (Basis of Design) 0.020" (5.0mm) LVT materials to carpet with total thickness of 0.21" (5.3mm) to 0.25" (6.4mm), 0.18" (4.6mm) cap with 0.13" (3.2mm) wide support.
  1. Profile: ME001, Color: 178 Ironstone
  2. Locations: As indicated on finish plans.
- C. (TR-2) Description, Tarkett (Basis of Design) Resilient Edge Guard Molding transition reducer strips with undercut for ¼" glue down carpet, 2 1/8" base surface.
  1. Profile – EG-29-H, Color- Moon Rock and Dimensions: As indicated.
  2. Locations: As indicated on finish plans.

## 2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F710.



1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
  4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft. for each area, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
    - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
    - b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until materials are the same temperature as space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### 3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners:
  1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 8'-0" in length.

- a. Form without producing discoloration (whitening) at bends.
2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 8'-0" in length.
  - a. Miter or cope corners to minimize open joints.

### 3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Stair Accessories:
  1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
  2. Tightly adhere to substrates throughout length of each piece.
  3. For treads installed as separate, equal-length units, install to produce a flush joint between units.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Floor Polish: Remove soil, adhesive, and blemishes from resilient stair treads before applying liquid floor polish.
  1. Apply three coat(s).
- C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

## SECTION 09 65 19 – RESILIENT TILE FLOORINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. Section Includes:
  - 1. Luxury vinyl tiles.

#### 1.2 SCOPE:

- A. Provide all of the labor, materials, equipment and services to furnish and install the resilient tile flooring and additionally named products.

#### 1.3 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Manufacturer's literature fully describing each product and its proper installation for this Project.
  - 2. Physical sample (each product): All colors and patterns.

#### 1.4 WARRANTY

- A. Special Warranty for luxury vinyl tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of luxury vinyl tile installation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, more than 10 percent loss of scratches, gouged and delamination tiles.
- B. Warranty: 10 Year

#### 1.5 EXTRA MATERIALS:

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Furnish no less than 1 box of each. 4.5 sq. ft. per piece/6 per carton.

### PART 2 - PRODUCTS

#### 2.1 LUXURY VINYL TILE (LV)

- A. (LV-1) Basis of Design – Manufacturer: JJ Contract-Flooring Group, Style: Tatami V5003, Colorway: 1018 Kyoto. Heavy commercial luxury vinyl tile with fiberglass, Class III, Type B.
  - 1. Thickness: 5mm
  - 2. Finish / Coating: Enhanced UV Urethane w/ceramic bead
  - 3. Pattern Repeat: Brick.
  - 4. Dimensions: 18" width x 36" length

5. Backing Class: Commercial Grade
6. Commercial Traffic: Heavy Commercial
7. Wear layer thickness: 20 mil. (0.02 in)
8. Installation: Direct glue

B. Acceptable Manufacturers:

1. Patcraft.
2. Mannington.
3. Mohawk.
4. Shaw Contract.

## 2.4 ADHESIVES

A. Provide manufacturer's standard adhesive for all locations not subject to significant moisture.

1. Use acrylic latex pressure sensitive adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - a. Commercialon for JJ Contract flooring.

B. Provide special adhesives when high moisture conditions exist. All bathrooms, janitor rooms, kitchens, breakrooms, entry ways/ lobby's etc. Install per manufacturer's recommendations.

1. Acceptable Manufacturers
  - a. Mohawk, Nuspraylok Platinum
  - b. XL Brands, Evolution-ms 8500
  - c. Sealflex Industries, SI-Ultra Tac 255
  - d. Sprayloc 6500 platinum (manufacturer in the USA)

## 2.5 OTHER MATERIALS:

A. All other materials, including but not limited to, adhesives, not specifically described but required for a complete and proper installation of resilient tile flooring and other named products, shall be only as recommended by the manufacturer of the material to which it is applied and shall be subject to the approval of the Architect.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS:

- A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that resilient tile flooring shall be installed in accordance with the original design and the manufacturer's recommendations.
- C. In the event of discrepancy, immediately notify the Architect.
- D. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### 3.2 INSTALLATION:

- A. Install all products in strict accordance with the original design and the manufacturer's recommendations.
- B. In locations having higher moisture content or exposed to plumbing fixtures, a higher moisture resistant adhesive must be used. The adhesive should provide a minimum 10 lbs. moisture emission resistance and be necessary to include a ph blocker / primer.

### 3.3 CLEANING AND PROTECTION:

- A. Upon completion of the installation, immediately remove all surplus adhesive from adjacent surfaces. As soon as possible after installation, and in accordance with the timing recommended by the manufacturers, clean, seal, and wax all product surfaces according to manufacturer's recommendations
- B. Provide a non-staining paper pathway taped to the resilient flooring in direction of foot traffic throughout the Work.

END OF SECTION 09 65 19



## SECTION 09 68 13 - TILE CARPETING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes all of the labor, material, equipment and services to furnish and install carpet tiles.

#### 1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Show the following:
  - 1. Existing flooring materials to be removed.
  - 2. Existing flooring materials to remain.
  - 3. Carpet tile type, color, and dye lot.
  - 4. Pattern of installation.
  - 5. Insets and borders.
  - 6. Edge, transition, and other accessory strips.
  - 7. Transition details to other flooring materials.
- C. Samples: For each color and texture required.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- E. Maintenance data.

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Mockups: Before installing carpet tile, build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution, if requested by Owner or Architect.
  - 1. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

## 1.5 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

## 1.6 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
  - 1. Warranty Period: Lifetime Commercial Limited from date of Substantial Completion.
    - a. Limited Lifetime Wear & Backing.
    - b. Limited 15-year Xguard Stain Resistant
    - c. Limited 15-year ColorSafe Bleach Resistant

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Carpet: For each type specified, boxes equal to 5 percent of amount installed for each type indicated, but not less than 8 sq. yd./18 tiles per box.
- B. This material shall not be available to the contractor for replacement goods within the building warranty period.



## PART 2 - PRODUCTS

## 2.1 CARPET TILE (CPT)

- A. Products: Subject to compliance with requirements, provide one of the following:
  - 1. (CPT-1): Mannington; Ridgeline.
    - a. Color: 10901 Crest
    - b. Pattern: Ridgeline
    - c. Manufacturer: Mannington.com, (800) 241-4014
- B. Fiber Content: 100% Solution Dyed Nylon.
- C. Fiber Type: Type 6,6 Nylon, Colorsafe & XGaurd.
- D. Pile Characteristic: Patterned loop.
- E. Stitches: 12 per inches.
- F. Gauge: 1/10 inches, 39.37 per 10 cm).
- G. Total Weight: 28oz./sq. yd. for finished carpet tile.
- H. Primary Backing/Backcoating: Infinity 2 Modular. **[Fiberglass-reinforced PVC] [Fiberglass-reinforced amorphous resin] [<Insert specific primary backing materials; consult manufacturers>.**
- I. Secondary Backing: EcoWorx.
- J. Size: 12 by 48 inches, 18 pieces, 8 sq. yd. per carton.
- K. Environmental:
  - 1. Green Label Plus Certified
  - 2. Cradle to Cradle Certified Gold
  - 3. NSF 140 Gold
  - 4. Health Product Declaration
  - 5. Declare Label, red list compliant
  - 6. No PVC components

## 2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

- C. Infinity 2 Adhesive may be used over properly prepared concrete, wood, terrazzo, steel and other suitable substrates. Bring high spots level by sanding, grinding etc., fill and smooth low spots or rough surface. Use only high-quality Portland cement-based materials with a minimum 3000 psi compressive strength (ASTM C109). Mix with water only, do not use latex. The sub floor must be clean (free of dirt, dust, old adhesives, grease, wax, or other contaminants that may stain or prevent adhesion), smooth, flat, sound, fit for purpose, and free of movement. Concrete sub floors must be fully cured, clean, free from curing agents.

No Moisture Testing Required for Infinity 2 Modular or rEvolvE II backing when installed with Infinity 2 Adhesive provided the slab meets ASTM F710 including the presence of an intact moisture vapor retarder per ASTM E1745 (Class B Minimum), is in direct contact with the concrete slab, no standing water, no free liquids present, no evidence of moisture staining, and no hydrostatic pressure, for porous installations only. PH testing is required with a limit of 12.

- D. For all other condition's or when the above requirements are not met, the Infinity 2 Modular or rEvolvE II backing limits are in-situ relative humidity (maximum RH 95% per ASTM F-2170) and/or moisture vapor emissions (maximum 10 lbs./1,000 SF/24 hrs. per ASTM F-1869). Concrete must have a 12 pH (ASTM F-710). On-grade and below-grade concrete slabs must have an approved vapor retarder (ASTM E-1745) which is properly installed (ASTM E-1643)
- E. Primer (if needed): 9050 is an acrylic solution made to neutralize excess alkali that is also recommend as a primer coat to prevent over absorption of adhesive and to ensure a better bond. Formulated with an antimicrobial agent, it provides protection against bacteria, fungi, and mildew in the wet or dry state. Contains no solvent, alcohol, or other hazardous materials per OSHA 29 CFR 1910.1200. Non-photo chemically reactive per rule #102. Available in 4-gallon pails.
- F. Leveling and Patching Compounds: Use a cementitious patching/leveling compound that meets or exceeds the required moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.
- G. After spreading the Infinity 2 Adhesive, allow adhesive to dry, no adhesive transfer to your finger. The working time will vary with the temperature, humidity, and porosity of the subfloor.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer. Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

- D. Install pattern 1/3 ashlar parallel to walls as indicated on Finish plan A701.

### 3.2 CLEAN-UP AND PROTECTION

- A. Clean-up: Upon completion of the work, remove all waste, excess materials, tools and equipment from job site. Remove loose threads from carpeted surfaces. Remove adhesives from carpet and other surfaces, which are not scheduled to receive adhesive as they occur.
  - 1. Carefully and thoroughly vacuum clean carpeting with an upright bar type beater, vacuum cleaner.
  - 2. Usable pieces (approx. one sq. yd. and larger) of carpet not required to complete the work, shall be left on the job site and shall be placed in an orderly manner in an area designated by the Architect for the Owner's use.
- B. Repair: Prior to acceptance of installation, carpet, which is damaged, stained, discolored, torn, ripped or otherwise not acceptable, shall be repaired and replaced with new material in an approved manner recommended by the Architect.
- C. Protection: Protect installed carpeting from damages by other Contractors and be responsible for installing protective materials over traffic areas and if necessary closing off areas to traffic.
- D. Instruction: After the installation is completed, the carpet manufacturer and contractor shall provide representative to instruct the Owner's maintenance personnel in the care, cleaning and maintenance of the installed carpet.

END OF SECTION 09 68 13



## SECTION 09 84 33 - SOUND ABSORBING UNITS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Manufactured polyester felt, decorative acoustical panel in freestanding frame.

#### 1.3 REFERENCES

- A. ASTM International:
  - 1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
  - 2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 3. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

#### 1.4 SYSTEM DESCRIPTION

- A. Performance Requirements:
  - 1. Surface Burning Characteristics (ASTM E84):
    - a. Flamespread: 25 maximum.
    - b. Smoke Developed: 250 maximum.

#### 1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 01 Submittal Procedures Section.
- B. Product Data: Submit product data sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.
- D. Samples: Submit selection and verification samples of finishes, colors and textures.
- E. Test Reports: Certified test reports showing compliance with specified performance requirements.

1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting.

## 1.6 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 01 Product Requirements Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

## 1.7 PROJECT CONDITIONS

### A. Temperatures

1. Maintain substrate surface and ambient temperatures above 55 degrees F, unless required otherwise by manufacturer's instructions.
2. Do not apply adhesive when substrate surface temperature or ambient temperature is below 55 degrees F.
3. Maintain these conditions 72 hours before, during, and after installation of vinyl wallcovering.

- A. Lighting: Provide not less than 80 foot candles per square foot minimum, measured mid- height on the surfaces to receive wallcoverings.

### C. Wall Condition

1. The wall surface should be clean, dry, structurally sound, and free of mildew, grease, dust, or other stains.
2. Remove any existing wallcovering and adhesive.
3. Plaster and masonry wall surfaces should not exceed 5.5% moisture when measured by a BD-8 Delmhorst moisture meter. Gypsum board wall surfaces should not exceed 16% moisture.
4. Room humidity should not exceed 90%.
5. Wall surfaces should be primed with a quality wallcovering primer as approved by manufacturer. Wall surfaces with significant color variation should be primed with a good quality pigmented wallcovering primer.
6. New plaster should age 60-90 days before painting or installing wallcovering.

## PART 2 - PRODUCTS

### 2.1 ACOUSTICAL WALL PANELS

#### A. Basis of Design: Manufacturer: Haworth, BuzziFalls

1. All Acoustical room panels dividers shall be the product of one distributor.
2. Acoustical room panels dividers shall be Acoustical Pattern Series: Rain as distributed by BuzziFalls, Haworth. Contact 800-426-8562. Reference A700 Interior Finish Legend for specific color, size and style.

- B. Acceptable manufacturers:
  - 1. MDC, Zintra, Starburst, (2) panels glued back to back.
  - 2. PeterPepper
  - 3. Magnussen.

## 2.2 MANUFACTURED UNITS (AP)

- A. Haworth, BuzziFalls Standing: Acoustic Freestanding Panel: AP-1
  - 1. Constructed using Polyester Fiber
  - 2. Thickness: ½" per panel. (2) panels glued back to back, texture facing exterior.
  - 3. Size: 33.07" W x 80.31" H (Single screen)
  - 4. Edge Detail: Single screen, Pattern: Rain, Trim paint: Black BTR-9005
  - 5. Foot base included with frame.

## PART 3 - EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

### 3.2 CLEANING

- A. Follow manufacturer's instructions for cleaning panels soiled during installation. Replace panels that cannot be cleaned to as new condition.
- B. Keep site free from accumulation of waste and debris.

END OF SECTION 09 84 33





## SECTION 09 91 00 – PAINTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes surface preparation and field painting of the following:
  - 1. Exposed exterior items and surfaces.
  - 2. Exposed interior items and surfaces.
  - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from a full range of standard colors and finishes available.
  - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and ironwork, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels. Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections include the following:
  - 1. Division 02 through 09.
  - 2. Divisions 22, 23 and 26: Painting of plumbing, mechanical and electrical work is specified in Divisions 22, 23 and 26, respectively.

#### 1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
  - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  - 2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
  - 3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
  - 4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
  - 5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

## 1.4 SUBMITTALS

- A. Product Data: For each paint system specified. Include block fillers and primers.
  - 1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
  - 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use
- B. Samples for Initial Selection: Manufacturer's color fan deck showing the full range of colors available for each type of finish-coat material indicated.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- B. Comply with MPI standards for products and paint systems.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

## 1.7 PROJECT CONDITIONS

- A. Apply paints per Paint Manufacturer's conditions and instructions.

## 1.8 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
  - 1. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. or more than 1 case, as appropriate, of each material and color applied.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.

- B. Manufacturers Names: The following manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses:
1. The Sherwin-Williams Co. (SW)
  2. PPG Paints (PPG)
  3. Benjamin Moore & Co. (Moore)

## 2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect from the submitted approved manufacturer's complete set of available colors. Use 'Monochromatic Gray tinted primer' per manufacturer's recommendation for base coat of Deep and Ultra Deep colors.
- D. Areas to receive accent colors to be designated by Architect. Verify quantity of colors and location using the finish legend, finish plans, room schedule and elevations.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. Reinstall items when

painting is completed. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.

- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning. Use appropriate cleaners or solvents recommended by the paint and coatings manufacturer.
  - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
  
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  - 1. Provide barrier or tie coats over incompatible primers or remove and reprime.
  - 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Form release agents on tilt up panels can be removed by recommended cleaners and pressurized water if recommended by manufacturer. Prepare surface per manufacturer's recommendations.
  - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
  - 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods. These can be referred to as Passivator Coatings. Conduct a "Copper Sulfate" or other recommended method to see if Passivator Coatings are present. These MUST be removed to promote proper adhesion of primers and or finish coats.
  
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
  - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using. Mechanically mix (drill mix) ALL dual component products as per manufacturers recommendations.
  - 3. Use only thinners approved by paint manufacturer and only within recommended limits.

## 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
  7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
  9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions sand between applications.
  2. Omit primer on metal surfaces that have been shop primed and touchup painted unless a FULL PRIME COAT is specified.
  3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of Polyester, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with Spray tip orifice size as recommended by the manufacturer for the material and texture required. ONLY use electric spray equipment indoors or in confined areas due to Carbon Monoxide and indoor air quality.

- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness (DFT) of the entire system as recommended by the manufacturer.
  - E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.
  - F. Exposed mechanical items to be painted include, but are not limited to, the following:
    - 1. Pipe hangers and supports.
    - 2. Heat exchangers.
    - 3. Tanks that do not have factory-applied final finishes.
    - 4. Ductwork.
    - 5. Insulation.
    - 6. Motors and mechanical equipment
    - 7. Accessory items.
  - G. Exposed electrical items to be painted include, but are not limited to, the following:
    - 1. Conduit, piping and fittings.
    - 2. Switchgear (Not already pre-finished).
    - 3. Panelboards (Not already pre-finished).
  - H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled. Surface must be a minimum of 95% Pinhole free
  - I. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing. Use gray tinted primer per manufacturer for base coat with saturated interior paint color selections.
  - J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
  - K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
    - 1. Provide satin finish for final coats or otherwise specified.
  - L. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
  - M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- 3.4 CLEANING
- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site. Do not dispose of paints and solvents in liquid or solid form on any on site trash containers or dumpsters.

## 3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

## 3.6 EXTERIOR PAINT SCHEDULE

- A. Concrete, Stucco, and Masonry (Other than Concrete Masonry Units): Provide the following finish systems over exterior concrete, stucco, and brick masonry surfaces:
  - 1. Flat Acrylic Finish: 2 finish coats over a primer.
    - a. Primer: Alkali-resistant, exterior, acrylic-latex primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Loxon Concrete & Masonry Primer/Sealer, LX02W50.
      - 2) PPG: 4-603 PPG PermaCrete Alkali Resistant Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Primer/Sealer 609.
    - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100® Exterior Latex Flat, A6 Series
      - 2) PPG: 6-610XI Series Speedhide Flat Acrylic Latex Exterior Paint
      - 3) Benjamin Moore: Ultra Spec EXT Ext Flat HP N447.
- B. Concrete Masonry Units: (For non-intragal colored block) Provide the following finish systems over exterior concrete masonry units:
  - 1. Flat Acrylic Finish: 2 finish coats over a block filler.
    - a. Block Filler: High-performance, latex block filler applied at spreading rate recommended by the manufacturer to achieve a total dry mill thickness of not less than 7.0 mils DFT.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100 Exterior Latex Satin, A6 Series.
      - 2) PPG: 6-610XI Series Speedhide Flat Acrylic Latex Exterior.
      - 3) Benjamin Moore: Ultra Spec EXT Exterior Satin HP N447.
- C. Exterior Gypsum Soffit Board: Provide the following finish systems over exterior gypsum soffit board:
  - 1. Flat Acrylic Finish: 2 finish coats over an exterior latex alkali-resistant primer, as recommended by the manufacturer.

- a. Primer: Exterior, alkyd- or alkali-resistant, acrylic-latex primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
    - 1) SW: Multi-Purpose Int/Ext Latex Primer, B51-450.
    - 2) PPG: 4-603 PPG PermaCrete Alkali Resistant Primer Sealer.
    - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Primer/Sealer 609.
  - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
    - 1) SW: A-100® Exterior Latex Flat, A6 Series.
    - 2) PPG: 6-610XI Speedhide Flat Acrylic Latex Exterior.
    - 3) Benjamin Moore: Ultra Spec EXT Exterior Flat HP N447.
- D. Wood Surfaces and Trim: Provide the following finish systems over smooth wood siding, plywood and other exterior wood surfaces and exterior trim: (Note: If there are existing wood surfaces that are to be painted that have an alkyd-based finish, prep surface per manufacturer's instructions before applying new finish.)
1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Exterior, alkyd or latex, wood primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Exterior Oil-Based Wood Primer, Y24W8020.
      - 2) PPG: 17-921 Seal Grip Interior Exterior 100% Acrylic Universal Primer.
      - 3) Benjamin Moore: Benjamin Moore® Multi-Purpose Primer (067)
    - b. First and Second Coats: Semigloss, waterborne, exterior, acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100 Exterior Latex Satin, A82 Series
      - 2) PPG: 6-900XI Speedhide Exterior Semi-Gloss Acrylic Latex.
      - 3) Benjamin Moore Ultra Spec EXT Gloss N449.
- E. Wood Shakes and Rough Siding and Stained Wood: Provide the following finish systems over exterior wood shakes and rough wood siding and stained wood:
1. Flat Acrylic Finish: 2 coats of an acrylic-latex stain.
    - a. First and Second Coats: Solid-color, exterior, acrylic-latex, wood stain applied at spreading rate recommended by the manufacturer.
      - 1) SW: Superdeck Solid Color Acrylic Stain.
      - 2) PPG: FLD820 Flood Solid Color 100% Acrylic Stain.
      - 3) Benjamin Moore: ARBORCOAT® Waterborne Ultra Flat Solid Stain (610)
- F. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items unless a barrier or tie coat is required.
1. Full-Gloss, Alkyd-Enamel Finish: 2 finish coats over a rust-inhibitive primer.
    - a. Primer: Rust-inhibitive metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
      - 1) SW: Kem Kromik Universal Primer B50WZ1
      - 2) PPG: 4160 MultiPrime Rust Inhibitive Metal Primers.
      - 3) Benjamin Moore: Corotech V131 Universal Metal Primer.



- b. First and Second Coats (DTM Acrylic Finish): Full-gloss, exterior High Performance Acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils.
  - 1) SW: Pro Industrial DTM Acrylic Gloss B66W100 Series.
  - 2) PPG: 4216 HP Pitt Tech Int/Ext DTM Acrylic Industrial Gloss Enamel.
  - 3) Benjamin Moore: Ultra Spec HP D.T.M. Acrylic Gloss (HP28).
- G. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated (galvanized) metal surfaces:
  - 1. Full-Gloss, Acrylic-Enamel Finish: 2 finish coats over a galvanized metal primer.
    - a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 4020 Pitt Tech Plus WB Metal Primer- Finish
      - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer Hp04.
    - b. First and Second Coats (DTM Acrylic Finish): Full-gloss, exterior Acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils.
      - 1) SW: Pro Industrial DTM Acrylic Gloss B66-1050 Series.
      - 2) PPG: 4216 HP Pitt Tech Int/Ext DTM Acrylic Industrial Gloss Enamel.
      - 3) Benjamin Moore: Ultra Spec HP D.T.M. Acrylic Gloss (HP28).

### 3.7 INTERIOR PAINT SCHEDULE

- A. Concrete and Masonry and Concrete Masonry units. Provide the following paint systems over interior concrete and masonry surfaces: (Note: If there are existing surfaces that are to be painted that have an alkyd-based finish, prep surface per manufacturer's instructions before applying new finish.)
  - 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer or block filler.
    - a. Primer (no-masonry units): Alkali-resistant, acrylic-latex, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.0 mils.
      - 1) SW: Loxon Concrete & Masonry Primer/Sealer, LX02W50.
      - 2) PPG: 4-603 PPG Perma Crete Acrylic Latex Alkali Resistant Primer.
      - 3) Benjamin Moore: Ultra Spec Acrylic Masonry Primer/Sealer 608.
    - b. Block Filler (for masonry units only): High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - c. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      - 1) SW: ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series.
      - 2) PPG: 6-4510XI Speedhide Zero VOC Latex Semi-Gloss.
      - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (N539)

2. Two Component, Epoxy Coating with Gloss Finish: 2 finish coats over a block filler. **(See drawings or finish schedule for locations noted "epoxy paint")**
    - a. Block Filler: High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler or Corotech V155 100% Solids Epoxy Pre-Primer Semi-Gloss
    - b. First and Second Coats: Gloss, epoxy emulsion.
      - 1) SW: Waterbased Catalyzed Epoxy B70-200/B60V15.
      - 2) PPG: 98-1 Aquapon Waterbased Gloss Epoxy Coating
      - 3) Benjamin Moore: Corotech Waterborne Acrylic Epoxy Gloss (V450).
  3. Single Component Pre- Catalyzed Epoxy Gloss Coating: 2 finish coats over a block filler. **(See drawings or finish schedule for locations noted "epoxy paint")**
    - c. Block Filler: High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      1. SW: Pro Industrial Heavy Duty Block Filler B42W150
      2. PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      3. Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - d. First & Second Coats: Pre-Catalyzed WB Epoxy Coating applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0mils.
      1. SW: Pro Industrial Pre-Catalyzed WB Epoxy Semi-Gloss, K46 Series.
      2. PPG: 16-551 Pitt Glaze Pre- Catalyzed WB Gloss Epoxy Coating
      3. Benjamin Moore: V341 Corotech Pre- Catalyzed WB Semi- Gloss Epoxy
- B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
1. Acrylic-Enamel Finish:(for walls) 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Interior Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
    - b. First and Second Coats: Low-Sheen (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Eg-Shel, B20-2600 Series.
      - 2) PPG: 6-4310XI Speedhide Zero "0" VOC Latex Eggshell.
      - 3) Benjamin Moore: Ultra Spec 500 Eggshell (T538).
  2. Flat Acrylic Finish:(for ceilings and soffits) 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).

- b. First and Second Coats: Low-Sheen (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
  - 1) SW: ProMar 200 Zero VOC Flat, B30-2600 Series.
  - 2) PPG: 6-4110XI Speedhide Zero VOC Latex Flat Enamel.
  - 3) Benjamin Moore: Ultra Spec 500 Interior Eggshell Finish (T538).
3. Two Component Epoxy Semigloss Coating: 2 finish coats over a block filler or primer. **(See drawings or finish schedule for locations noted "epoxy paint".)**
  - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
    - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
    - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
    - 3) Moore: Ultra Spec 500 Primer (534).
  - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
    - 1) SW: Waterbased Catalyzed Epoxy Semi-Gloss B70/B60V25.
    - 2) PPG: 98-1 Aquapon Waterbased Semi- Gloss Epoxy Coating
    - 3) Benjamin Moore: Corotech Waterborne Acrylic Epoxy Gloss (V450).
4. Single Component Pre-Catalyzed Epoxy Coating: 2 finish coats over a Gypsum Board primer. **(See drawings or finish schedule for locations noted "epoxy paint".)**
  - a. Primer: Latex-based, interior primer applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0 mils.
    - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
    - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
    - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
  - b. First and Second Coats: Pre-Catalyzed Epoxy Coating applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0 mils.
    - 1) SW: Pro Industrial Pre-Catalyzed WB Epoxy Coating K46
    - 2) PPG: 16-551 Pitt-Tech Pre-Catalyzed WB Epoxy Coating
    - 3) Benjamin Moore: Corotech Pre-Catalyzed WB Epoxy Coating V341
- C. Woodwork and Hardboard: Provide the following paint finish systems over new, interior wood surfaces:
  1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a wood undercoater.
    - a. Undercoat: Acrylic-latex-based, interior wood under coater, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
    - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      - 1) SW: ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series.
      - 2) PPG: 6-4510XI Speedhide Zero VOC Latex Semi-Gloss.
      - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (N539).

2. Semigloss, Waterbased-Alkyd-Enamel Finish: 2 finish coats over a primer. **(Note: Use only when painting existing alkyd-based woodwork or matching existing woodwork.)**
  - a. Primer: Odorless Alkyd or latex-based, interior enamel undercoater applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
    - 1) SW: ProBlock Interior Oil-Based Primer, B79W8810.
    - 2) PPG: 17-921 Seal Grip Acrylic Universal Primer.
    - 3) Benjamin Moore: Fresh Start Undercoater & Primer/Sealer (032).
  - b. First and Second Coats: Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
    - 1) SW: ProMar 200 Acrylic-Alkyd Semi-Gloss, B34W8200.
    - 2) PPG: 6-1510 Speedhide Interior Exterior WB Alkyd Semi Gloss.
    - 3) Benjamin Moore: Advance WB Alkyd Semi-Gloss 793.
- D. Stained and Natural-Finish Woodwork: Provide the following stained finishes over new, interior woodwork: To Match color of D-1. See sheet A700
  1. Alkyd-Based, Satin-Varnish Finish: 2 finish coats of an alkyd-based, clear-satin varnish over a sealer coat and an alkyd-based, interior wood stain. Wipe wood filler before applying stain.
    - a. Filler Coat: Paste-wood filler applied at spreading rate recommended by the manufacturer. **(Provide for wide grained woods such as oak only. Provide color putty or filler to match stain if dark color stain is selected by Architect.)**
    - b. Stain Coat **(Do not use if natural-finish noted in drawings or finish schedule):** Alkyd-based, interior wood stain applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Tintable Wood Stain.
      - 2) PPG: DFT400 Series Deft Interior Oil Based Wood Stain.
      - 3) Benjamin Moore: Lenmar Waterborne Interior Wiping Wood Stain 1AS.12XX series.
    - c. Sealer Coat: Clear sanding sealer applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Sanding Sealer.
      - 2) PPG: DFT157 Deft Interior Water Based Gloss Polyurethane (thin 10%).
      - 3) Benjamin Moore: 413 Benwood Alkyd Quick Dry Sanding Sealer.
    - d. First and Second Finish Coats: Alkyd-based or polyurethane varnish, as recommended by the manufacturer, applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Fast Dry Varnish Satin.
      - 2) PPG: DFT157 Deft Interior Water Based Satin Polyurethane.
      - 3) Benjamin Moore: 423 Benwood Stays Clear Acrylic Polyurethane Low Luster Finish.
  - E. Ferrous Metal: Provide the following finish systems over ferrous metal:
    1. Semigloss, Acrylic -Enamel Finish: One finish coat over an enamel undercoater and a primer.

- a. Primer: Quick-drying, rust-inhibitive, Acrylic or Waterbased epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 -4.0 mils.
    - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
    - 2) PPG: 4020PF Pitt Tech WB Metal Primer- Finish
    - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer HP04.
  - b. Finish Coat: Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils.
    - 1) SW: ProMar 200 Acrylic-Alkyd Semi-Gloss, B34W8200.
    - 2) PPG: 6-1510 Speedhide Interior Exterior WB Alkyd Semi Gloss.
    - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (T546).
- F. Zinc-Coated Metal: Provide the following finish systems over zinc-coated metal:
1. Eg-Shel or Satin, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 90-712 Series Pitt-Tech Acrylic Primer/Finish.
      - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer HP04.
    - b. First and Second Coats: Low- Sheen (eg-shel or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Eg-Shel, B20-2600 Series.
      - 2) PPG: 6-4310XI Speedhide Zero “0” VOC Latex Eggshell.
      - 3) Benjamin Moore: Ultra Spec 500 Eggshell (N538).
- G. Exposed Metal Structure:( If Applicable) (Galvanized Metal Decking), structural beams, braces, columns, bar joists and miscellaneous ductwork.: Provide the following finish systems over these substrates. **NOTE: Check for Passivator Coatings on substrates. Conduct a Copper Sulfate or recommended test. If protective coating or film is present it must be removed entirely prior to application of primers and or finish coats. Consult paint manufacturer for recommendations.**
1. Flat, Eg-Shel or Semi-Gloss Dryfall Coating: 1-2 finish coats over a primer.
    - a. Primer: IF NEEDED: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 90-712 Series Pitt-Tech Acrylic Primer/Finish.
      - 3) Moore: Ultra Spec Hp Acrylic Metal Primer Hp04
    - b. First and Second Coats: Flat, Eggshell or Semi-Gloss Interior Latex Dryfall Coatings applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Pro Industrial Waterborne Dryfall B42 Series
      - 2) PPG: 6-724xi Super Tech Waterborne Dryfall Coatings
      - 3) Benjamin Moore: Latex Dryfall - Flat 395

END OF SECTION 09 91 00



## SECTION 09 98 60 - SANITARY WALL FINISH

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. This section describes the requirements for furnishing and installing fiberglass reinforced plastic panels according to manufacturer's recommendations.

#### 1.2 SUBMITTALS:

- A. Submit in accordance with Division 01.
  - 1. Two samples of each type of panel, each type of trim and fastener.
  - 2. Shop Drawings: Indicate the location and dimension of joints and fastener attachments.
  - 3. Installation Guide.

#### 1.3 QUALITY ASSURANCE:

- A. Provide panels and molding only from the manufacturer specified to ensure warranty and color harmonization of accessories.

#### 1.4 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery of Materials: Package sheets on skids or pallets for shipment to project site.
- B. Storage of Materials: Store panels in a dry place at the project site.
- C. Handling: Remove foreign matter from face of panel by use of a soft bristle brush, avoiding abrasive action.

#### 1.5 PROJECT CONDITIONS:

- A. Installation shall not begin until building is enclosed, permanent heating and cooling equipment in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
- B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
- C. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

### PART 2 - EXECUTION

#### 2.2 MATERIALS: (FRP)

- A. (FRP-1) Class A © Interior Finish. Wall panels shall be Glasbord "FX" with Surfaseal, (fiberglass reinforced plastic panels / FRP). Manufactured by Crane Composites Inc., Channahon, Illinois 60410.

PH: 1-800-435-0080, fax: 1-815-467-8666, website: cranecomposites.com. Color to be White 85. Finish to be Pebbled Embossed texture. Panel thickness shall be nominal .09" (2.3mm) for Glasbord for use as general purpose wall application. Panel size to be 4'-0" x 8'-0". Approved Equal Manufacturers per Division 01.

1. Independent laboratory ASTM E-84 testing.
  2. Flame Spread of 200 or lower, Smoke Developed of 450 or lower per ASTM E-84 latest version.
  3. Barcol Hardness: 40 (scratch resistance) ASTM D-2583.
  4. Panels will exhibit no more than a 0.038% weight loss after a 25-cycle Taber Abrasion Test.
  5. Impact Strength ASTM 5420: 45.0 in/lbs. showing no visible damage on finish side.
  6. Meets USDA/FSIS Guidelines.
  7. A means of front side identification and confirmation of meeting Class A © interior finish requirements after installation and while in service without labels.
- B. Moldings:
1. Standard vinyl/PVC (polyvinylchloride) moldings shall be: 85 White.
- C. Sealant: Joints sealed with a high quality clear silicone sealant in food preparation, storage, or process areas, areas of high moisture, and in areas where steam cleaning occurs.
- D. Rivets: Optional. Specify rivets in harmonizing colors (by color name and number) in areas where there are wide changes in temperature or humidity, where the substrate is unusually uneven, and in all low temperature or cold storage applications. Refer to Installation Guide #6211 for rivet pattern and installation instructions.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Installation Quality: Install wall and door protection according to manufacturer's written instructions, level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
- B. Mounting Heights: Install wall and door protection in locations and at mounting heights indicated on Drawings.
- C. Accessories: Provide splices, mounting hardware, anchors, trim, joint moldings, and other accessories required for a complete installation.
  1. Provide anchoring devices and suitable locations to withstand imposed loads.
  2. Where splices occur in horizontal runs of more than 20 feet (6.1 m), splice aluminum retainers and plastic covers at different locations along the run, but no closer than 12 inches (305 mm) apart.
  3. Adjust end and top caps as required to ensure tight seams.



3.2 CLEANING

- A. General: Immediately upon completion of installation, clean vinyl covers and accessories in accordance with manufacturer's recommended cleaning method.
- B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

3.3 PROTECTION

- A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION 09 98 60



# Division 10 - Specialties



## SECTION 10 11 00 – VISUAL DISPLAY SURFACES

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the marker boards and tack boards.

#### 1.2 SUBMITTALS:

- A. Prior to fabrication, submit to the Architect for review the following:
  - 1. Complete and fully descriptive manufacturer's literature which shall include the manufacturer's currently recommended installation methods.
  - 2. Shop drawings showing complete dimensions, details, and layouts.
  - 3. Physical sample of all colors available for the Architect's selection.
- B. As a condition precedent to the final acceptance, furnish a manufacturer's certificate stating that the work installed under this Section has been fabricated and installed in all respects in compliance with the Contract Documents.

### PART 2 - PRODUCTS

#### 2.1 MARKERBOARD: (MB)

- A. (MB-1) Whiteboard Wet Markerboard: Porcelain Steel Whiteboard within the demountable wall system. See A101 & A701 First Floor Finish Plan and 2-6/A701 Demountable wall type 2A-2E elevations for locations and sizes.
- B. (MB-2) Whiteboard Wet Markerboard: Porcelain Steel Whiteboard with Deluxe Aluminum Trim. See A101 & A701 First Floor Finish Plan for locations.
- C. Acceptable manufacturers subject to compliance with this specification and the specifications of the product listed above are:
  - 1. Basis of design: Claridge Products and Equipment, Inc.
  - 2. Marsh Industries, Inc
  - 3. Platinum Visual Systems Inc.
  - 4. ASI Visual Display Products
- D. Sizes: Standard height 4'-0" high unless otherwise noted. See drawings for widths or if not indicated 8' long.
- E. Trim: Aluminum with marker tray and tack strip at top.
- F. Color: White, see A700 Interior Finish Legend. For substitutions submit all colors for Architect to select. Finish as selected by Architect
- G. Coordinate exact locations with Owner and Architect. Reference A101 and A701.

## 2.3 TACKBOARD: (TB)

- A. (TB-1) Tackboard within the demountable wall system. See A701 First Floor Finish Plan and 2-6/A701 Demountable wall type 2A-2E elevations for locations and sizes. Cork, vinyl or fabric colors as selected by Architect.
- B. (TB-2) Natural Cork Tackboard with Aluminum Trim as manufactured by:
  - 1. Basis of Design: Claridge Products and Equipment, Inc.
- C. Acceptable manufacturers subject to compliance with this specification and the specifications of the product listed above are:
  - 1. MooreCo/Vanerum North America
  - 2. Marsh Industries, Inc
  - 3. Platinum Visual Systems, Inc.
  - 4. ASI Visual Display Products
- D. Trim: Aluminum.
- E. Sizes: Standard height 4'-0" high unless otherwise noted. See drawings for widths, or if not indicated, 8' long.
- F. Cork, vinyl or fabric colors as selected by Architect. See A700 Interior Finish Legend for color designation
- G. Coordinate exact locations with Designer.

## 2.4 OTHER MATERIALS:

- A. All other materials, not specifically described but required for a complete and proper installation of the boards and the tackboard, shall be as selected by the Contractor subject to the approval of the Architect.

## PART 3 – EXECUTION

## 3.1 GENERAL:

- A. Materials shall be installed in accordance with the Contract Documents, approved shop drawings, and manufacturer's instructions. It is the intention of this Specification to provide materials manufactured and installed in such a manner as to be rigidly anchored to assure a permanent installation.

## 3.2 INSTALLATION:

- A. Install all the chalkboards and tack boards where indicated on the Drawings and as indicated on the approved submittals, anchoring all components firmly in place for long life under hard use and in complete accordance with the manufacturer's recommendations.

## 3.3 INSPECTION AND ADJUSTMENT:

- A. Upon completion of the installation, and as a condition of its acceptance, visually inspect the entire work of this Section, adjust all components for proper operation and straight alignment, and touch-up all scratches and abrasions to be completely invisible.

END OF SECTION 10 11 00

## SECTION 10 14 00 - SIGNAGE

### PART 1 - GENERAL

#### 1.01 SUMMARY:

- A. This section includes the following types of signs:
  - 1. Interior plaques.
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. See Drawings for labels, tags, and nameplates for plumbing, mechanical, and electrical equipment.

#### 1.02 SUBMITTALS:

- A. General:
  - 1. Submit the following according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data:
  - 1. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- C. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
- D. Color Charts: Manufacturer's color charts consisting of actual sections of material including the full range of colors available for each material required.
- E. Samples of Interior Plaques: Two actual-sized samples of interior plaques showing compliance with requirements.

#### 1.03 QUALITY ASSURANCE:

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.
- C. Design Concept: The drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Sign units by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS:

- A. Subject to compliance with requirements, provide products by one of the following:
  - 1. Manufacturers of Interior Plaques:
    - a. Andco Industries Corp.
    - b. ASI Sign Systems, Inc.
    - c. Leeds Architectural Letters, Inc.
    - d. SignArt
    - e. Best Sign Systems
    - f. Or approved equal

#### 2.02 MATERIALS:

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thick nesses indicated, with a minimal flexural strength of 16,000psi when tested according to ASTM D 790, with a minimum allowable continuous service temperature of 176 deg F.
- B. Aluminum Sheet: Provide aluminum sheet of alloy and temper recommended by the sign manufacturer for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 209 for 5005-H15.
- C. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
- D. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into masonry work.
- E. Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are nonfading for the application intended.

#### 2.03 FINISHES:

- A. Baked-Enamel Finish: AA-M4xC12C42R1x (Mechanical Finish: Manufacturer's standard, other nondirectional textured; Chemical Finish: Chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: as specified below). Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, and painting.
  - 1. Organic Coating: Thermosetting-modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with a minimum dry film thickness of 1.5 mils, medium gloss.
    - a. Color: Selected from manufacturer's full range of colors.

#### 2.04 INTERIOR PLAQUES(ROOM IDENTIFICATION SIGNS): TYPE (IRS) and (ICRS)

- A. Interior Plaques: shall be a modular type signage system. Signs shall be fabricated of acrylic and be ADA compliant.
  - 1. Material: Factory-painted matte finish acrylic plastic laminated to acrylic back, signs to be 6"x6", restroom signs to be 6"x9", and in case of fire signs to be 6"x9"; square corners.
- B. Mounting: 1/16 inch-thick double-sided vinyl foam tape or as recommended by manufacturer.
  - 1. Height: Signs shall be mounted 60" A.F.F. to the centerline of the sign unless noted otherwise in the specifications or drawings.



2. Where a sign is mounted on a glass sidelite, conceal the mounting tape by applying a blank sign of matching material and size to the opposite side of the glass.
- C. Tactile Graphics: Signage shall be tactile (Perceptible to touch); comply with ANSI A117.1, paragraph 4.28. Letters, numbers, and pictograms on tactile signs shall be raised 1/32 inch minimum. Tactile letters and numbers shall be Helvetica Regular and 5/8 inch high. Raised characters and symbols shall be accompanied by Grade 11 Braille. The Contractor shall be responsible for the translations into Braille. Letters shall contrast with their background.
1. Graphics Application: Signage graphics shall be relieved 1/32 inch minimum from plaque first surface by photomechanical stratification process. Cut and adhered graphics will not be acceptable.
- D. Messages:
1. IRS should be permanent message as noted in schedule below.
  2. ICRS should have permanent message and a slot for changeable message with clear acrylic lens to protect message (owner shall be able to print office name and insert into slot)
  3. All messages to be verified with Owner for each location, see schedule below.

#### 2.05 SIGNAGE SCHEDULE:

- A. Signage Schedule: Provide the following signs; verify wording with Owner prior to fabrication. "XXX" denotes room number to be verified with owner, for submittal purposes use room numbers on plans.

Location	Sign Type	Quantity	Verbiage
Door 102A	IRS Style and Color to match existing signs in 102 Sublobby	1	"XXX STORAGE"
Room 103	Existing to Remain		
Room 104	Existing to Remain		
Door 105	ICRS	1	"XXX OFFICE" – Include changeable message
Door 106	ICRS	1	"XXX OFFICE" – Include changeable message
Door 107	ICRS	1	"XXX OFFICE" – Include changeable message
Door 108	ICRS	1	"XXX OFFICE" – Include changeable message
Door 109	IRS	1	"XXX PRIVATE ROOM"
Door 110	IRS	1	"WOMEN" – Include international symbol for HC restroom
Door 111	IRS	1	"XXX JANITOR"
Door 112	IRS Style and Color to match existing signs in 102 Sublobby	1	"PERSONNEL ONLY"
Door 113	IRS	1	"XXX PRIVATE ROOM"
Door 114	IRS	1	"MEN" – Include international symbol for HC restroom
Door 116	IRS	1	"XXX STORAGE"

Door 118	ICRS	1	“XXX OFFICE” – Include changeable message
Door 119	ICRS	1	“XXX OFFICE” – Include changeable message
Door 120	ICRS	1	“XXX OFFICE” – Include changeable message
Door 121	IRS	1	“XXX BILLING OFFICE”
Door 122	IRS	1	“XXX BREAK ROOM”
Door 123	IRS	1	“XXX STORAGE”
Door 124	ICRS	1	“XXX OFFICE” – Include changeable message
Door 125	ICRS	1	“XXX OFFICE” – Include changeable message
Door 126	ICRS	1	“XXX OFFICE” – Include changeable message
Door 127	ICRS	1	“XXX OFFICE” – Include changeable message
Door 128	IRS	1	“XXX CUSTOMER SERVICE”
Door 129	IRS Style and Color to match existing signs in 102 Sublobby	1	“FINANCE DEPARTMENT”
Door 130	IRS	1	“XXX CONFERENCE ROOM”
Door EX 132	IRS	1	“XXX IT ROOM”
Door 133	ICRS	1	“XXX OFFICE” – Include changeable message
Door 134	ICRS	1	“XXX OFFICE” – Include changeable message
Door 135	IRS	1	“XXX STORAGE”
Door EX SB	IRS	1	“XXX STAIR B”
Electrical Room	IRS	1	“XXX ELECTRICAL ROOM”

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. General: Locate signs where indicated, using mounting methods of the type described and in compliance with the manufacturer’s instructions.
1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Interior Plaques: Attach panel signs to wall surfaces using the methods indicated below:
1. Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces.
  2. Concealed Mounting: Mount the plaques by inserting threaded studs into tapped lugs on the back of the plaque. Set in predrilled holes filled with quick-setting cement.
  3. Cement Mounting: Mount plaques using exposed fasteners with rosettes attached through the face of the plaque into the wall surface.

#### 3.02 CLEANING AND PROTECTION:

- A. After installation, clean soiled sign surfaces according to the manufacturer’s instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 10 14 00

## SECTION 10 28 13 - TOILET ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the toilet accessories.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Complete and fully descriptive manufacturer's literature, which shall include a picture of the product, product size, material type and gauge, finish, and installation detail.
  - 2. A complete list of all accessories proposed for use and the room (identified by room number and room name) and the number of accessories of each type installed in that particular area. Include rough-in drawings for recessed accessories and details of backing.

### PART 2 – PRODUCTS

#### 2.1 APPROVED MANUFACTURERS:

- A. Bradley Corporation  
Mt. Laurel, New Jersey

Bobrick Washroom Equipment  
Los Angeles, California

ASI American Specialties, Inc.  
Yonkers, NY

An approved equal submitted 10 days prior to bid.

- B. Note: The catalog numbers and descriptive names used are those of Bobrick Washroom Equipment unless otherwise noted and are for the purpose of convenience, identification, and establishing standards of quality for materials, construction, dimensions, etc.

#### 2.2 TOILET ACCESSORIES:

- A. See Toilet Accessory Schedule on Drawings.

#### 2.3 FASTENING:

- A. All items of toilet accessories shall be provided complete with all required fastening devices. All fastening devices shall harmonize, in finish, with the item being fastened.

### PART 3 – EXECUTION

3.1 INSTALLATION:

- A. Install all toilet accessory units in accordance with manufacturer's instructions, using fasteners, which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.
- B. Grab bars: Finished installation of grab bars shall be capable of withstanding 250 lbs. of pressure.

3.2 ADJUST AND CLEAN:

- A. Adjust toilet accessories for proper operations and verify that mechanisms function smoothly.
- B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION 10 28 13

## SECTION 10 44 00 - FIRE EXTINGUISHERS AND CABINETS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the fire extinguishers and cabinets.

#### 1.2 SUBMITTALS:

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.
  - 1. Fire Extinguishers: Include rating and classification.
  - 2. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style and panel style.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.

#### 1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
  - 1. Provide extinguishers listed and labeled by FM.

#### 1.4 COORDINATION:

- A. Coordinate size and type of cabinets to ensure that the type and capacity of fire extinguishers indicated can be accommodated.

### PART 2 - PRODUCTS

#### 2.1 FIRE EXTINGUISHERS AND CABINETS:

- A. Basis-of-Design Products: Subject to compliance with requirements, provide products by the manufacturer specified in the paragraph below as basis-of-design products or comparable products by one of the following manufacturers:

1. Potter Roemer Industries.
2. J. L. Industries, Inc.

B. Basis of Design: Larsen's Manufacturing Company, Architectural Series.

## 2.2 FIRE EXTINGUISHERS:

A. Type:

1. Multi-Purpose Areas: Dry Chemical Larsen's MP Series MP-10.
2. Kitchen Areas: Wet Chemical Class K Larsen's WC Series WC-6L.
3. Mechanical/Electrical Areas: DC Series Larsen's DC-10.

## 2.3 FIRE EXTINGUISHER CABINETS:

A. Type:

1. Provide Fire-Rated Cabinets where required: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where installed in rated wall.
  - a. Semi-Recessed-Mounted: Larsen's FS 2409-R4
  - b. Surface Mounted: Larsen's 2409-SM.

B. Door Style: Larsen's Vertical Duo. Fire-rated with partial glass vision panel in door.

C. Cabinet shall be sized to accommodate extinguisher.

D. Finish: Baked enamel in color as selected by the Architect.

## PART 3 - EXECUTION

### 3.1 GENERAL:

- A. Examine walls and partitions for suitable framing depth and blocking where recessed and semi-recessed cabinets are to be installed.
- B. Examine fire extinguishers for proper charging and tagging.
  1. Remove and replace damaged, defective, or undercharged units.
- C. Comply with manufacturer's written instructions for installing fire-protection specialties.
- D. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction and ADA Standards..
  1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
  2. Fasten mounting brackets to structure and cabinets, square and plumb.
  3. Fasten cabinets to structure, square and plumb.
- E. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10 44 00

# Division 12 - Furnishings





## SECTION 12 24 00 – WINDOW SHADES (MANUAL)

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes manually operated roller shades with single rollers made from opaque/blackout fabric window shades including, controls, and mounting hardware.
- B. Reference A700, A702 & A703 for locations.

#### 1.2 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product data for each type of window shade specified. Include printed data on physical characteristics.
- C. Shop drawings showing locations and extent of window shades. Provide elevations indicating window openings. Show installation details at and relationship to adjoining work. Include plans, elevations, sections, details, details of installation and operational clearances.
  - 1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 2. Use same designations indicated on Drawings. (All interior & exterior windows).
- D. Indicate location of shade controls.
- E. Samples of manufacturer's colors, finishes, textures, and patterns as scheduled or acceptable manufacturer's closest match:
  - 1. Shade Fabrics for the following:
  - 2. Metal finish
- F. Schedule of window shades using same room designations indicated on Drawings. Indicate field verified window dimensions, quantities, type of shade, controls, fabric, and color.
- G. Manufacturer's installation instructions.
- H. Maintenance data for window shades to include in the operation and maintenance manual specified in Division 1. Include the following:
  - 1. Methods for maintaining window shade fabric and finishes.
  - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.3 QUALITY ASSURANCE:

- A. Single-Source Responsibility: Obtain each type of window shade from one source and by a single manufacturer.
- B. Installer shall be qualified to install specified products by prior experience.
- C. Fire-Test-Response Characteristics: Provide products passing flame-resistance testing according to NFPA 701 by a testing agency acceptable to authorities having jurisdiction.
- D. Comply with WCMA A 100.1.

#### 1.4 PROJECT CONDITIONS

- A. Field Measurements: Check actual window shade dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Space Enclosure and Environmental Limitations: Do not install window shades until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.
- B. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.
- C. Label containers and shades according to Window Shade Schedule.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS: (WC)

- A. Subject to compliance with requirements, provide window shade as indicated here within and on the drawings, Sheet A700.
- B. Basis of Design Product:
  - 1. SWF Contract; Manually operated single roller solar shade.
  - 2. TruePerformance Manual Solar Shades
  - 3. Continuous-Loop Lift
  - 4. Matching Fabric Contour Valance sized to conceal shade roll with returns
  - 5. Heat sealed hem bar
  - 6. Finishes: Metal finish – 875 Clear anodized.
  - 7. SWF Contract  
8467 Route 405 Highway South  
Montgomery, PA 17752  
Phone: 1.877.792.0002
- C. Acceptable Manufacturers:
  - 1. Hunter Douglas, 4310 Regency Drive, Bldg 101, High Point, NC 27265  
Phone: 1. 336.812.8181
  - 2. Levolor, 3 Glenlake Parkway NE, 10th Floor, Atlanta, GA 30328  
Phone: 1. 800.752.9677

3. MechoShade, 42-03 35<sup>th</sup> Street, Long Island City, NY 11101-2301  
Phone: 1. 718.729.2020

## 2.2 MANUALLY OPERATED WINDOW SHADES WITH SINGLE ROLLERS

- A. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
  1. Bead Chains: 875 Clear anodized.
  2. Loop Length: As required to operate full height of window shade.
  3. Limit Stops: Provide upper and lower round nickel-plated steel ball stops.
  4. Chain-Retainer Type: Locking-style chain retainer restricts the operation of the chain unless the chain retainer is properly mounted to a fixed surface such as a window frame, sill, or wall. Compliant with American National Standard for Safety of Corded Window Covering Products ANSI A100.1. Non-locking P-Clip is not acceptable.
  5. Spring Lift-Assist Mechanisms (SA): Manufacturer's standard for balancing roller-shade weight and lifting heavy roller shades.
    - a. Provide 6 lb. (2.7 kg) lift assist for shades as recommended by manufacturer.
- B. Rollers: Extruded-aluminum tubes engineered with channel to accept fabric spline. The diameter and wall thickness to be determined by manufacturer based on fabric selection and shade size to provide minimal deflection and optimal performance.
  1. Clutch System: Consists of fiberglass filled nylon for wear resistance, smooth operation and corrosion resistance. The clutch is comprised Velvetrol™ internal spring arrangement for a smooth pulling force that locks the shade in any position when operating the control loop. The clutch mechanism is bi-directional and does not require adjustment or lubrication. Clutch to be inserted in roller tube at manufacturing. Clutch size to be selected by manufacturer based on fabric selection and shade size.
  2. Roller Drive-End Location: Right side of shade.
  3. Direction of Shade Roll: Regular, from back of roller.
  4. Fabric-to-Roller Attachment: Removable spline system shall consist of a co-extruded PVC spline heat-welded to the shade fabric and inserted into an engineered channel on the roller tube. The spline system allows for adjustability on-site and ease in changing fabric bands in the field.
  5. Idler End: Constructed of high strength, fiberglass filled nylon with spring-loaded pin-end technology for wear resistance, smooth operation, and corrosion resistance.
- C. Mounting Hardware: Brackets, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
  1. Thickness; 16 gauge.
  2. Material: Stamped steel.
  3. Description: Fascia bracket, 875 Clear anodized.
- D. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to couple up to three inline rollers into a linked shade system that is operable by one roller drive-end assembly. Linking system allows alignment of hem bars without removing shade from brackets by the Infinite Adjuster.
- E. Fabric Bands:
  1. Fabric Band Material: Light-blocking fabric.
  2. Fabric Band Bottom (Hem) Bar: Extruded aluminum.
    - a. Type: Hem bars to be extruded aluminum in weight sufficient for proper shade operation. Enclosed in heat sealed pocket of fabric band material.
    - b. Color and Finish: 875 Clear anodized.

## F. Installation Accessories:

1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism and attaches to roller end brackets without exposed fasteners.
  - a. Shape: L-shaped.
  - b. Size: Manufacturer's standard required to conceal roller and fabric band when shade is fully open, but not less than height 3.75 inches (95 mm) by 1.5 inches (38 mm).
  - c. Color and Finish: 875 Clear anodized.
  - d. End cap: to cover exposed ends of fascia.
2. Exposed Pocket: Rectangular, extruded aluminum 3-sided enclosure covering front, top and back, with optional end caps, and optional removable bottom closure plate.
  - a. Width 4.75 inches (121 mm) by Height 5 inches (127 mm).
  - b. End cap: to cover exposed ends of pockets.
  - c. Color and Finish: 875 Clear anodized.
3. Recessed Pocket: Rectangular, extruded aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, optional end caps, and optional removable bottom closure plate.
  - a. Width 4.75 inches (121 mm) by Height 5 inches (127 mm) with 0.875 inch (22 mm) tile support.
  - b. Color and Finish: 875 Clear anodized
4. Closure Plate and Closure Mount: Removable 2 inch (51 mm) or 3 inch (76 mm) closure plate designed for installation at bottom of site-constructed ceiling recess or pocket and for snap-in attachment to closure mount without fasteners.
  - a. Closure-Plate Width: 2 inches.
  - b. Closure Mount: Without acoustical tile support.
  - c. Color and Finish: 875 Clear anodized.

G. Endcaps: Stamped steel with universal design suitable for mounting to ceiling, wall, and jamb. Provide size compatible with roller size.

H. Shade slat: Slat encased in heat seamed hem.

I. Fascia: L shaped aluminum extrusion to conceal shade roller and hardware.

1. Attachment: Snaps onto endcaps without requiring exposed fasteners of any kind. Fascia can be mounted continuously across two or more shade bands.
2. Finish: Submit All metal colors to be selected by Architect to match 875 Clear anodized.

## 2.3 FABRICS: (WC)

- A. Fabric Band Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. (WC-1) Interior roll- 3% Openness Fabric- Basis of Design: SWF Contract, Crosshatch R300 Series, UV Blockage 97%, Fire Classification NFPA 701 TM#1, Roll Width 118", 21% Polyester/79% Vinyl on Polyester, Greenguard Gold, PB Lead Free. Color Linen/Fog. Submit samples to Architect for selection.

- C. Orientation: Regular roll.
- D. Metal finish – 875 Clear anodized.

#### 2.4 SHADE FABRICATION:

- A. Product Safety Standard: Fabricate roller shades to comply with ANSI - WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows: measured at 74 deg. F (23 deg. C):
  - 1. Between (Inside) Jamb Installation: Width equal to jamb-to-jamb dimension of opening in which shade is installed, minus 1/8 inch (3.1 mm). Length equal to head-to-sill or - floor dimension of opening in which shade is installed less 1/4 inch (6 mm), with an 1/8 inch (3.1 mm) tolerance.

### PART 3 – EXECUTION

#### 3.1 PREPARATION

- A. Field verify window dimensions prior to fabrication.
- B. Coordinate requirements for blocking, construction of shade pockets, and structural supports to ensure adequate means for installation of window shades.
- C. Coordinate installation of recessed shade pockets with construction of suspended gypsum board ceilings specified in Section 09 21 16 – Gypsum Board Assemblies.

#### 3.2 INSTALLATION

- A. Install window shades at locations indicated on Drawings and approved Window Shade Schedule.
- B. Comply with shade manufacturer's written instructions and approved submittals.
- C. Install roller shades level, plumb, and aligned with adjacent units per manufacturer's written instructions.
  - 1. Opaque Fabric Bands: Located so fabric band is not closer than 2 inches (51 mm) to interior face of glass. Allow clearances for window operation hardware.
- D. Shade pockets where concealed mounting is indicated:
  - 1. Install shade pockets in conjunction with installation of ceiling system. Attach to supporting structure with screws through top of pocket at 24 inches' minimum centers.
  - 2. Install pocket ends securely and in alignment with pockets.
  - 3. After interior construction is essentially complete, install shade and operating mechanism in pocket.

- E. Install fascia and endcaps to conceal roller and operating mechanism where surface mounting is indicated. Do not use exposed fasteners.
- F. Provide and install chain catches.

### 3.3 TESTING AND DEMONSTRATION

- A. Demonstrate operation of shades to Owner's designated representatives.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensure window shades are without damage or deterioration at the time of Substantial Completion.
- B. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.
- C. Clean shade assemblies and protect from damage from construction operations.
- D. Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.

END OF SECTION 12 24 00

## SECTION 12 36 61 - QUARTZ COUNTERTOPS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Quartz countertops.
  - 2. Setting materials and accessories.
  
- B. Related Sections:
  - 1. Section 06 22 00 - Millwork.

#### 1.2 REFERENCES

- A. American National Standards Institute (ANSI):
  - 1. A108.5 - Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
  - 2. A118.4 - Latex-Portland Cement Mortar.
  
- B. ASTM International (ASTM):
  - 1. C97 - Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
  - 2. C99 - Standard Test Method for Modulus of Rupture of Dimension Stone.
  - 3. C170 - Standard Test Method for Compressive Strength of Dimension Stone.
  - 4. C241 - Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic.
  - 5. C482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
  - 6. C484 - Standard Test Method for Thermal Shock Resistance of Glazed Ceramic Tile.
  - 7. C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
  - 8. C648 - Standard Test Method for Breaking Strength of Ceramic Tile.
  - 9. C650 - Standard Test Method for Resistance of Ceramic Tile to Chemical Substances.
  - 10. C672/C672M - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.
  - 11. C880 - Standard Test Method for Flexural Strength of Dimension Stone.
  - 12. C1026 - Standard Test Method for Measuring the Resistance of Ceramic Tile to Freeze-Thaw Cycling.
  - 13. C1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
  - 14. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

#### 1.3 SUBMITTALS

- A. Shop Drawings: Include countertop layout, dimensions, materials, finishes, cutouts, and attachments.
  
- B. Samples:
  - 1. 2 each, a minimum of 6" x 6" inch quartz samples to be selected from the manufacturer's full range of available colors.
  - 2. 2 each, 3" inch long joint sealer samples in full range of manufacturer's colors to match countertop selection.

## 1.4 QUALITY ASSURANCE

- A. Fabricator and Installer Qualifications: Minimum 5 years documented experience in work of this Section.

## 1.5 WARRANTY

- A. Provide manufacturer's 10-year warranty against defects in materials and workmanship.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS (QTZ)

- A. Basis of Design:
  - 1. (QTZ-1), Silestone 825 I110203 Lyra.
- B. Product must be approved in writing (5) days prior to bid date by the Architect. Acceptable manufacturers:
  - 1. Definiti
  - 2. Hanstone
  - 3. Cambria
  - 4. Or approved equal.

## 2.2 MATERIALS (QTZ)

- A. Quartz Sheet:
  - 1. Product: Quartz Slab minimum slab size of 4' x 8'
  - 2. Composition: Quartz aggregate, resin, and color pigments formed into flat slabs.
  - 3. Color: To be selected from manufacturer's full color range.
  - 4. Thickness: 1 1/4" / 3cm.
  - 5. Physical characteristics:
    - a. Water absorption: Maximum 0.03 percent, tested to ASTM C97.
    - b. Breaking strength: Minimum 480 lbf, tested to ASTM C648.
    - c. Stain resistance: Not affected by 10 percent hydrochloric acid or 10 percent KOH, tested to ASTM C650.
    - d. Thermal shock resistance: Pass 5 cycles, tested to ASTM C484.
    - e. Abrasive index: 65-Ha = 25, tested to ASTM C241.
    - f. Thermal expansion:  $1.670 \times 10^{-5}$  in/in/deg F, tested to ASTM C531.
    - g. Flame spread rating: Class 1, tested to ASTM E84.

## 2.3 ACCESSORIES

- A. Adhesive: Type recommended by quartz manufacturer for countertop / slab installation.
- B. Joint Sealer:
  - 1. Latisil Tile and Stone Sealant by Laticrete International, Inc. or approved substitute.
  - 2. Color: To be selected from manufacturer's full color range.

## 2.4 FABRICATION

- A. Cut quartz panels accurately to required shapes and dimensions.
- B. Radius exposed edges.



- C. Fabricate with hairline joints.
- D. Cut holes for sinks & faucets.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Clean surfaces to receive countertops; remove loose and foreign matter than could interfere with adhesion.

#### 3.2 INSTALLATION

- A. Install countertops in accordance with manufacturer's instructions and approved Shop Drawings. Only use moisture resistant plywood for stability/support if required by manufacturer. Particle Board will not be accepted by the Owner.
- B. Adhere countertops to supports with continuous beads of adhesive.
- C. Set plumb and level. Align adjacent pieces in same plane.
- D. Install with hairline joints.
- E. Fill joints between countertops and adjacent construction with joint sealer; finish smooth and flush.

#### 3.3 INSTALLATION TOLERANCES

- A. Maximum variation from level and plumb: 1/8 inch in 10 feet, noncumulative.
- B. Maximum variation in plane between adjacent pieces at joint: Plus or minus 1/16 inch.

#### 3.4 CLEANING

- A. Clean countertops in accordance with manufacturer's instructions.

#### 3.5 PROTECTION

- A. Protect installed countertops with plywood or particle board sheet coverings.

END OF SECTION 12 36 61



# PART 2 – ALTERATIONS TO CITY OPERATIONS



# Division 01 - General Requirements



## SECTION 01 10 00 – SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of alteration work.
  - 1. Project Location: 305 Williams Street, Hendersonville, NC 28792
  - 2. Owner: City of Hendersonville
- B. Architect Identification: The Contract Documents, date indicated on the Contract Documents, were prepared for Project by ADW Architects, P. A., 2815 Coliseum Centre Drive, Suite 500 Charlotte, North Carolina 28217. Phone:(704) 379-1919.
- C. The Work consists of alterations to the existing City Operations Building in Hendersonville, NC. Alterations will include but is not limited to: demolition of the interior space, slab cutting for new utilities, new walls, new ceilings, new hardware, new floor and wall finishes, new plumbing, new electrical, and alteration HVAC and fire protection systems.

This work also include minimal alterations to existing exterior walls to infill existing openings or providing new openings.

Interior finishes include gypsum wallboard on metal studs or furring channels, demountable wall partitions, and painted block walls. Acoustical and gypsum board ceilings. Floor finishes include porcelain tiles, carpet, and luxury vinyl tile.

Special coordination will be required with the owner's security vendor and the owner's IT & A/V vendor. Construction is expected to be completed in approximately 8 months. The owner will be occupying the building throughout construction.

#### 1.3 CONTRACTS

- A. Project will be constructed under a general construction contract.

#### 1.4 WORK SEQUENCE

- A. The Work shall be conducted in the following sequences unless construction phases otherwise specified.
  - 1. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner.
  - 2. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction will provide alternative usage.

3. See drawings for phasing of work for owner's occupation throughout construction.

#### 1.5 SITE INVESTIGATION

- A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the performance of the Work and all other matters which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

#### 1.6 USE OF PREMISES

- A. Owner Occupancy
  1. Owner will occupy the premises during the entire period of construction to conduct his normal operations. Cooperate with Owner in all construction operations to minimize conflict, and to facilitate Owner usage.
  2. Contractor shall at all times conduct his operations as to insure the least inconvenience and the greatest amount of safety and security for the Owner, his staff, and the general public.

#### 1.7 PROTECTION REQUIREMENTS FOR NEW AND EXISTING CONSTRUCTION

- A. Protect the existing building from wind, storms, cold heat, water and dust damage of any sort. Provide all equipment and enclosures to maintain this protection and keep the building interior free of water and dust during the life of the Contract.
- B. Provide all shoring and bracing required to maintain the integrity and the safety of the existing structure and for the proper execution of the Work.
- C. Exercise the utmost care to protect all existing utility lines from damage during the progress of the Work.
- D. Provide and erect before any work begins, and maintain during the progress of the Work, all necessary fences, warning signals, signs and lights. Extent of this work and details of construction shall be in accordance with the requirements of all state and local codes.
- E. Any portion of the existing building or existing utility services not included as part of this Contract or any portion of the Work damaged because of failure to provide the protection required shall be removed and replaced with new materials and construction at the Contractor's expense. This work shall be accomplished subject to the Architect's and Owners' approval.

#### 1.8 REPLACEMENT AND REPAIR OF ANY STRUCTURES THAT HAVE BEEN DESTROYED IN THE PROGRESS OF THE WORK:

- A. Because of the installation of the new items of equipment, fixtures, materials, etc., that are required by this Project, it shall become necessary to remove portions of the existing structure,



equipment, and/or utility services. Unless specifically noted otherwise on the Drawings, the Contractor shall be responsible for replacing, in a condition of identical appearance, construction, design, working order, and strength as its previous state, any such portion of the existing structure, equipment, and/or utility services so required to be disturbed. The replaced item shall meet the approval of the Architect before final approval of the Project is given.

#### 1.9 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner will award a separate contract for performance of certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. This contract will include the following:
  - 1. Audio/Video Systems.
  - 2. Security Systems.
  - 3. Furniture Systems.
- B. Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

#### 1.10 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish appliances, office equipment and audio visual equipment. The Work includes providing support systems to receive Owner's equipment and plumbing, mechanical, and electrical connections.
  - 1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
  - 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
  - 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
  - 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
  - 5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
  - 6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
  - 7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Architect noting discrepancies or anticipated problems in use of product.
  - 8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
  - 9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
  - 10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.

#### 1.11 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.
  - 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the

beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

## SECTION 01 14 00 - WORK RESTRICTIONS

### PART 1 - GENERAL

#### 1.1 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
  - 1. Limits: Confine constructions operations to areas of new work as defined on the drawings.
  - 2. Owner Occupancy: Allow for Owner occupancy of site and use by the public.
  - 3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

#### 1.2 OCCUPANCY REQUIREMENTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.
- B. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
  - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
  - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
  - 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building.
  - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 14 00



## SECTION 01 21 00 - ALLOWANCES

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.
- B. Items covered by these allowances shall be supplied for such amounts and by such persons as the Architect may direct.
- C. Designate in Construction Schedule delivery dates for products under each allowance.
- D. Designate in Schedule of Values quantities of materials specified under unit cost allowances.

#### 1.02 SELECTION OF PRODUCTS:

- A. Architect's Duties:
  - 1. Consult with Contractor in consideration of products and suppliers. Make selection, designate products to be used. Notify Contractor, in writing, designating:
    - a. Product, model, and finish.
    - b. Accessories and attachments.
    - c. Supplier.
    - d. Cost, delivered and unloaded at site.
- B. Contractor's Duties:
  - 1. Assist Architect in determining qualified suppliers. Obtain proposals from suppliers when requested by Architect. Make appropriate recommendations for consideration of Architect. Notify Architect of any effect anticipated by selection of product or supplier under consideration on the Construction schedule or the Contract Sum.
  - 2. On notification of selection, enter into purchase agreement with designated supplier.

#### 1.03 DELIVERY:

- A. Contractor's Responsibility:
  - 1. Arrange for delivery and unloading.
  - 2. Promptly inspect products for damage or defects.
  - 3. Submit claims for transportation damage.

#### 1.04 INSTALLATION:

- A. Comply with requirements of referenced specification section.

#### 1.05 ADJUSTMENT OF COSTS:

- A. Each Allowance includes the cost, expense, and/or materials as set forth for each item.
- B. In the event the materials, as set forth in each allowance, do not cost, as much as allotted, a credit shall revert to the Owner.
- C. In the event the materials, as set forth in each allowance, are not used in their entirety, a

monetary credit shall revert to the Owner.

- D. In either of the above instances, the Contractor shall be required to substantiate quantity actually used of the allotted monies and/or materials.

## PART 2 - PRODUCTS

### 2.01 ALLOWANCE NO. 1 - CONTINGENCY ALLOWANCE:

- A. Make a cash allowance for a contingency that is to cover minor, unforeseen items of work arising during construction. It does not include error or omissions by Contractor. Work shall be charged against this allowance only under the direction of the Architect with approval by Owner.
- B. Determined Cash Allowance: 5% of construction cost

## PART 3 - EXECUTION

(NOT APPLICABLE)

END OF SECTION 01 21 00

## SECTION 01 22 00 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. See Division 01 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.

#### 1.2 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 LIST OF UNIT PRICES

- A. **Unit Price No. #1: REMOVAL OF UNSUITABLE MATERIAL**
  - 1. Description: Material that contains organic matter, muck, humus, peat, sticks, debris, or other deleterious materials not normally suitable for use in earth work, including procedures for measurement and payment, according to Division 31.
  - 2. Unit of Measurement: Per cubic yard.

**B. Unit Price No. #2: IN-PLACE STRUCTURAL FILL**

1. Description: In-place Structural Fill, including procedures for measurement and payment, according to Division 31.
2. Unit of Measurement: Per cubic yard.

**C. Unit Price No. #5: IN-PLACE CONCRETE PAVING**

1. Description: In-place concrete paving, including procedures for measurement and payment, according to Division 32.
2. Unit of Measurement: Per square foot (4" thickness)

END OF SECTION 01 22 00



## SECTION 01 23 00 - ALTERNATES

### PART 1 - GENERAL

#### 1.01 DESCRIPTION:

- A. This section summarizes the alternate bids required to be submitted with each Bidder's bid. State in the alternate bids the net sum to be added to, or deducted from the Base Bid in the event the alternate bids are accepted.
- B. Submit alternate bids by filling in blank spaces provided thereof on the Bid Form furnished by the Architect.
- C. The Owner reserves the right to accept or reject any or all of the alternate bids.
- D. Where the description of the alternate bids lists Trade Sections affected by the alternate bid, such a listing shall not necessarily be considered all-inclusive. It shall be the responsibility of each Bidder to determine to his own satisfaction and for his own purposes the limits and extend of the Work affected by the alternate bids and to make full and proper allowance therefore in the submission of his alternate bid proposal.
- E. Include in the alternate bids all changes in cost, either additive or deductive, resulting in the work of all Trade Sections of the Specifications affected thereby. Work required by the alternate bids shall be performed in accordance with applicable Specifications of the Trade Section affected.
- F. Delayed acceptance of the alternate bids: The Owner reserves the right to delay the acceptance of the alternate bids for a period not to exceed 30 calendar days from the time of accepting the general contract without a change in the dollar amount of the alternate bids.

#### 1.02 WORK OF OTHER RELATED SECTIONS:

- A. Pertinent Sections of these Specifications describe the materials and methods required under the various alternates.
- B. The method for stating the proposed Contract Sum is described on the Bid Form.

#### 1.03 SUBMITTALS:

- A. All alternates described in this Section of these Specifications are required to be reflected in the bid submitted on the Bid Form for the Work; however, do not submit alternates other than those specifically allowed in the Documents.

#### 1.04 PRODUCT HANDLING:

- A. If the Owner elects to proceed on the basis of one or more of the alternates, make all modifications to the Work required in the furnishing and installation of the selected alternate or alternates to the approval of the Architect and at no additional cost to the Owner other than as proposed on the Bid Form.

PART 2 - PRODUCTS

- 2.01 ALTERNATE NO. 1 - *New Finishes in Existing 2<sup>nd</sup> Floor Restrooms*
- 2.02 ALTERNATE NO. 2 - *Alterations to 2<sup>nd</sup> Floor Restrooms*
- 2.03 ALTERNATE NO. 3 - *Additional Solar Tubular Lighting*

PART 3 - EXECUTION

## 3.01 ADVANCE COORDINATION:

- A. Immediately after award of Contract, and to the maximum extent possible, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner; use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection of alternatives.

## 3.02 SURFACE CONDITIONS:

- A. Prior to installation of the alternate items, verify that all surfaces have been modified as necessary to accept the installation and that the time or items may be installed in complete accordance with their manufacturer's current recommendations. In the event of discrepancy, immediately notify the Architect and proceed as he directs.

END OF SECTION 01 23 00

## SECTION 01 25 00 - PRODUCT SUBSTITUTIONS-PRIOR TO BID

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. The General Conditions of the Contract for Construction (AIA A201-2007) article 1.2 apply to this section

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions prior to the Owner's receipt of bids.
  - 1. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime Contractor.
- B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Division 01 Section "Submittal Procedures".
- C. Standards: Refer to Division 01 Section "References" for applicability of industry standards to products specified.
- D. Procedural requirements governing the Contractor's selection of products and product options are included under Division 01 Section "Product Requirements".

#### 1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for "substitutions". The following are not considered substitutions:
  - 1. Substitutions that are requested by Bidders beyond the 10 days prior to bid opening submittal period.
  - 2. Revisions to Contract Documents requested by the Owner or Architect.
  - 3. Specified options of products and construction methods included in Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution from prime bidders will be considered if received by the architect ten (10) days prior to the bid opening.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required below.
  2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification sections and drawing number.
  3. Provide complete documentation on both the product specified and the proposed substitution including the following information as appropriate.
    - a. Comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
    - b. Samples where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
  4. Certification by the Contractor or manufacturer that the substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and that it will perform equal or superior to product specified in the application indicated. The Contractor waives any right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.
  5. Architect's Action: The Architect may request additional information or documentation necessary for evaluation of the request. The Architect will notify the Contractors of acceptance of the proposed substitution by means of an addendum to the bid documents. If the proposed substitute is accepted through an addendum use the product specified by name.
- B. Architect/Engineer's Substitution Approval during bidding and subsequent addendums does not void the Contractor's responsibility to submit the required shop drawings and comply with the other contract documents and requirements.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when all of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to Contract Documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

PART 3 - EXECUTION

- A. Submit in format as outlined on following page.

PRODUCT SUBSTITUTION

Project \_\_\_\_\_

Date: \_\_\_\_\_ Bid Opening Date: \_\_\_\_\_

Product and / or Fabrication Method: \_\_\_\_\_

Spec Section: \_\_\_\_\_

Related Drawings: \_\_\_\_\_

<u>Criteria or Specified Product</u>	<u>Included</u>
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

<u>Criteria or Specified Product</u>	<u>Included</u>
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

The substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and it will perform equal or superior to product specified in the application indicated. The Contractor waives right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

Signed: \_\_\_\_\_

END OF SECTION 01 25 00

## SECTION 01 25 13 - PRODUCT SUBSTITUTIONS-POST BID

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including the General and Supplementary Conditions and other Division 01 Specification Sections apply to this section.
- B. The General Conditions of the Contract for Construction (AIA201-2007) Article 1.2 apply to this section

#### 1.2 SUMMARY

- A. During bidding period, the Bidders shall comply with the substitution request procedures specified in the Section 01 25 00 of the Project Manual.
- B. This Section specifies administrative and procedural requirements for handling requests for substitutions proposed by the Contractor after the award of the Contract.
- C. The substitution process is available as a means to promote fair and open procurement by the Owner, and not to provide the Contractor the opportunity to substitute products of an inferior quality. To that end, the Owner reserves the right to reject a product not deemed an equal to the product specified; charge the Contractor for the Additional Services, if required, of the Architect; or require an equitable credit for the substituted product.
- D. Multiple Prime Contracts: Provisions of this section apply to the construction activities of each Prime Contractor.
- E. The Contractor's Construction Schedule and the Schedule of Submittals are included under Division 01 Section "Submittal Procedures".
- F. Standards: Refer to Division 01 Section "References" for applicability of industry standards to products specified.
- G. Procedural requirements governing the Contractor's selection of products and product options are included under Division 01 Section "Product Requirements".

#### 1.3 DEFINITIONS

- A. Definitions used in the Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:

1. Revisions to Contract Documents requested by the Owner or Architect.

2. Specified options of products and construction methods included in Contract Document.
3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Requests for Substitution will be considered during the bidding period. Refer to Section 01 25 00.
- B. Substitution Request Submittal: Requests for substitution will be considered if received within thirty (30) days after the Notice to Proceed, or Letter of Intent, which ever comes first. Requests received more than thirty (30) days after the commencement of the work may be considered or rejected at the discretion of the Architect. Substitution items submitted without requests will be rejected.
  1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with the procedures required for change order proposals.
  2. Clearly indicate on the transmittal that the product being submitted is a substitution. Do not include on the same transmittal, any product that is not a substitution.
  3. Provide a credit change order proposal if the substitution is intended to provide the Owner a product of a lesser value than the value of the specified product. If the substitution will not result in a savings to the owner, then clearly narrate the reason for the proposed change.
  4. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions and the following information as appropriate:
    - a. Product Data, including Drawings and descriptions of products, fabrications and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those for the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.
    - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.



- f. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents and that it will perform adequately in the application intended. Include the Contractor's waiver of rights to additional payment for time that may subsequently become necessary because of the failure of the substitution to perform adequately.
  - g. Cost information, including a proposal of the net change, if any in the contract sum.
5. Architect's Action: The Architect may request additional information or documentation necessary for evaluation of the request. The Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made, use the product specified by name.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when all of the following conditions are satisfied, as determined by the Architect; otherwise, requests will be returned without action except to record noncompliance with these requirements.
- 1. Extensive revisions to Contract Documents are not required.
  - 2. Proposed changes are in keeping with the general intent of Contract Documents.
  - 3. The request is timely, fully documented and properly submitted.
  - 4. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
  - 5. Where a proposed substitution involves more than one (1) prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency and to assure compatibility of products.
  - 6. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
  - 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for re-design and evaluation services, increased cost of other construction by the Owner or separate Contractors and similar considerations.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 25 13

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.
- C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

#### 1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

#### 1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 20 days receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709

#### 1.4 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
  1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00



## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

#### 1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Change Orders (numbers) that affect value.
    - d. Dollar value.
      - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
  - 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
  - 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by

- measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
  9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

### 1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit a minimum of 3, or number agreed upon at pre-construction meeting, signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
  1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
  1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.



- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractor's Construction Schedule (preliminary if not final).
  4. Submittals Schedule (preliminary if not final).
  5. List of Contractor's staff assignments.
  6. Copies of building permits.
  7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  8. Certificates of insurance and insurance policies.
  9. Performance and payment bonds.
  10. Data needed to acquire Owner's insurance.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00





SECTION 01 29 13 – STATE AND COUNTY TAX FORM

## SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  1. General project coordination procedures.
  2. Coordination Drawings.
  3. Administrative and supervisory personnel.
  4. Project meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  1. Division 01 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
  2. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  3. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

#### 1.3 COORDINATION

- A. Coordination: The Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. The Contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
  1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Contact Progress Reporting: The scheduling and sequence of all operations shall be carefully coordinated with the Owner and Architect.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

#### 1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
  2. Indicate required installation sequences.
  3. Refer to Divisions 21, 22 & 23 for specific Coordination Drawing requirements for fire suppression, plumbing and mechanical installations.
  4. Refer to Division 26 for specific Coordination Drawing requirements for electrical installations.

#### 1.5 PROJECT MEETINGS

- A. General Project Meetings: The Architect shall conduct Project coordination/progress meetings on a bi-monthly basis. Project coordination meetings are in addition to specific meetings held for other purposes, such as preinstallation conferences. Schedule and conduct meetings and conferences at Project site, unless otherwise indicated
1. The Contractor shall attend the monthly progress meetings for the purpose of informing the Owner and the Architect regarding the status of the project. Compile minutes of the meeting, and furnish a copy of the minutes to attendance.
  2. Attendees: Owner, Contractor, Job Superintendent, Material Suppliers, and Subcontractors, as appropriate. Each representative shall be thoroughly familiar with the status of the project and shall be prepared to discuss and act upon any situations which may arise. The time, date and location of these meetings will be established during pre-construction conference. The General Contractor shall provide an updated job progress schedule at each meeting and inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  3. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.

- 4) Deliveries.
- 5) Off-site fabrication.
- 6) Access.
- 7) Site utilization.
- 8) Temporary facilities and controls.
- 9) Work hours.
- 10) Hazards and risks.
- 11) Progress cleaning.
- 12) Quality and work standards.
- 13) Change Orders

- B. Preconstruction Conference: A preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments. The Architect will compile minutes of the meeting, and will furnish a copy of the minutes to the Contractor and Owner.
1. Attendees: Authorized representatives of Owner, Architect, Engineer's Representative, Contractor and their consultants; The Contractor and its job Superintendent (mandatory), job Foreman (mandatory), major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work. The Contractor shall also provide three (3) local telephone numbers which may be used to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
  2. Agenda: Discussion of Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, with the Architect and Owner, including channels and procedures for communication. Items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Critical work sequencing.
    - c. Designation of responsible personnel.
    - d. Procedures for processing field decisions and Change Orders.
    - e. Procedures for processing Applications for Payment.
    - f. Distribution of the Contract Documents.
    - g. Submittal procedures.
    - h. Preparation of Record Documents.
    - i. Use of the premises.
    - j. Responsibility for temporary facilities and controls.
    - k. Parking availability.
    - l. Office, work, and storage areas.
    - m. Equipment deliveries and priorities.
    - n. First aid.
    - o. Security.
    - p. Progress cleaning.
    - q. Working hours.
  3. At the pre-construction meeting, the General Contractor shall submit a schedule of values consisting of a detailed breakdown of the Contract amount showing separate figures for labor and material for each major work item (i.e., tear-off, insulation, membrane, surfacing, metal, asbestos abatement, etc.) The work listed under the various sections and subsections of the Specifications will serve as the format for preparation of the breakdown.
  4. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. If related to special inspections or material testing, the Special Inspector and Engineer must attend along with the Architect. **Approved** shop drawings must also be available at these conferences. Coordinate with the Architect the scheduling of these meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related Change Orders.
    - d. Purchases.
    - e. Deliveries.
    - f. Submittals.
    - g. Review of mockups, if any.
    - h. Possible conflicts.
    - i. Compatibility problems.
    - j. Time schedules.
    - k. Weather limitations.
    - l. Manufacturer's written recommendations.
    - m. Warranty requirements.
    - n. Compatibility of materials.
    - o. Acceptability of substrates.
    - p. Space and access limitations.
    - q. Regulations of authorities having jurisdiction.
    - r. Testing and inspecting requirements.
    - s. Protection of construction and personnel.
  3. Record significant conference discussions, agreements, and disagreements.
  4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00



## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.
  - 5. Division 01 Section "Closeout Procedures" for submitting photographic negatives as Project Record Documents at Project closeout.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and early finish times.
  - 2. Predecessor activity is an activity that must be completed before a given activity can be started.
- B. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- C. Major Area: A story of construction, a separate building, or a similar significant construction element.
- D. Milestone: A key or critical point in time for reference or measurement.

#### 1.4 SUBMITTALS

- A. Submittals Schedule: Submit three (3) copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
- B. Preliminary Construction Schedule: Submit two (2) printed copies; one a single sheet of reproducible media and one a print.
- C. Contractor's Construction Schedule: Submit two (2) printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
- D. Field Condition Reports: Submit one (1) copy at time of discovery of differing conditions.
- E. Special Reports: Submit one (1) copy at time of unusual event.

#### 1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication. Submit within two weeks from Notice to Proceed.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

#### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than twenty (20) days, unless specifically allowed by Architect.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  - 4. Startup and Testing Time: Include not less than ten (10) days for startup and testing.
  - 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

### 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within thirty (30) days of date established for the Notice to Proceed. Base schedule on whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in twenty (20) percent increments within time bar.

### 2.4 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate Actual Completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect, Owner, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

## SECTION 01 33 00 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. See Division 01 for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
- C. See Division 01 for submitting test and inspection reports and Delegated-Design Submittals and for erecting mockups.
- D. See Division 01 for submitting warranties Project Record Documents and operation and maintenance manuals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. General: The Architect may, with the concurrence of the Owner, furnish to the Contractor versions of contract drawings in electronic form for Contractor's use in preparing submittals. See Paragraph 1.4 and 1.5 on the Contractor's use of CAD Files
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 for list of submittals and time requirements for scheduled performance of related construction activities.
  - 1. The Contractor shall prepare and submit to the Architect, not later than 30 days following the Date of Commencement, and prior to the Contractor's first Application for Payment, a schedule of all Shop Drawings and Submittals as required by the Contract Documents.
  - 2. No Applications for Payment will be reviewed or approved until receipt and approval of the Submittal Schedule.
  - 3. Schedule shall indicate dates for submission.
  - 4. All Shop Drawings, Samples and Submittals for approval shall be completed within one hundred twenty (120) calendar days following the Date of Commencement.
  - 5. The Architect will schedule his manpower to review submittals based on the time limits established above.

- a. Submittals by the Contractor received beyond the time limit established above may affect the Architects manpower schedule resulting in additional cost; the Contractor shall reimburse the Owner for the costs of the Architect's services for the review or approval beyond the time stipulated above.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
1. Initial Review: **Allow 15 work days for initial review of each submittal.** Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. **Allow 15 work days for processing each resubmittal.**
  4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Unique identifier, including revision number.
    - i. Number and title of appropriate Specification Section.
    - j. Drawing number and detail references, as appropriate.
    - k. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
  2. Transmittal Form: Use AIA Document G810 or CSI Form 12.1A.
  3. If a submittal is delivered to the Architect on digital media such as a CD or DVD, include a transmittal form with the package. If a submittal is sent electronically, include a digital transmittal form with the correspondence.

- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.
- K. Submittal Review by Architect:
  - 1. The Architect will review each of the Contractor's submittals one initial time, and, should re-submittal be required, one additional time to verify that the reason(s) for re-submittal have been addressed by the Contractor and corrections made.
  - 2. Any review required by the Architect, other than the two (2) indicated above, will be considered additional scope of work for the Architect, and the Contractor shall reimburse the Owner for all costs incurred, including the cost of the Architect's services, made necessary to review such additional re-submittals.

#### 1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request, copies of Architect's CAD files may be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
  - 1. The Contract Documents executed or identified in accordance with Subparagraph 1.5.1 of the General Conditions shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic means involving computers.
  - 2. The Contractor shall not transfer or reuse Instruments of Service in electronic or machine readable form without the prior consent of the Architect and a signed Electronic Machine Readable Release Form submitted to the Architect.
  - 3. Sub Contractors and Material Suppliers must communicate through the Contractor for the use of Instruments of Service in Electronic Form.
  - 4. **The ADW Electronic Machine Readable Release Form following this Section must be submitted along with subsequent fees associated with the files as noted on the form prior to the Architect providing the files.**
  - 5. **The request, signed release form and fee must be submitted to allow 5 working days for the Architect to perform this service.**

#### 1.5 CONTRACTOR'S USE OF ENGINEER'S AND CONSULTANT'S CAD FILES

- A. **General: The request for the Architect's Engineers and Consultants CAD files shall be at the discretion of the Engineers and Consultants and under the Engineers and Consultants identified conditions.**

### PART 2 - PRODUCTS

#### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  - 1. Submit one electronic copy in a digital file format. Digital file submittals must be legible and able to accept digital commenting from industry standard tools such as Adobe Acrobat. Digital file submittals shall not restrict the ability to be printed, the ability to have content copied, or the ability to have pages extracted or added.
  - 2. The General Contractor will be responsible for printing any hard copies of the submittals otherwise required by the Owner, Building Inspector, Fire Marshall, or other reviewing body.

3. Partial or incomplete submittals are not acceptable.
  - a. Any submittal or shop drawing received by the Architect, that does not contain all portions required by each Section of the Specification, will be returned not reviewed, not logged and will be considered non-responsive.
  - b. Requests for exceptions must be submitted in writing by the Contractor for evaluation and response, a minimum of 30 days prior to the submittal date indicated on the Contractor's approved/updated Submittal Schedule.
  
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Wiring diagrams showing factory-installed wiring.
    - f. Printed performance curves.
    - g. Operational range diagrams.
    - h. Compliance with recognized trade association standards.
    - i. Compliance with recognized testing agency standards.
  
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  1. Preparation: Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Notation of coordination requirements.
    - j. Notation of dimensions established by field measurement.
  2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
  
- D. Coordination Drawings: Comply with requirements in Division 01.
  
- E. Samples: Prepare physical units of materials or products, including the following:
  1. Comply with requirements in Division 01 for mockups.
  2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.



3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.
  4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side.
  5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
  6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.
- G. Delegated-Design Submittal: Comply with requirements in Division 01.
- H. Submittals Schedule: Comply with requirements in Division 01.
- I. Application for Payment: Comply with requirements in Division 01.
- J. Schedule of Values: Comply with requirements in Division 01.
- K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements in Division 01.
- B. Contractor's Construction Schedule: Comply with requirements in Division 01.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

- Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.
- R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation."

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  - 1. Reviewed
  - 2. Revise as noted
  - 3. Revise and resubmit
  - 4. Rejected
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01 33 00



## ELECTRONIC MACHINE-READABLE FILE RELEASE

At your request, ADW Architects, p.a. (ADW) will provide the Contractor: \_\_\_\_\_ with electronic machine readable files for your convenience and use in the preparation of documents subject to the following terms and conditions related to the following project:

**Project:** \_\_\_\_\_

ADW utilizes electronic machine-readable files that are compatible with Autodesk and Bentley software. The files furnished, if so requested, will be exported to a .dwg format. ADW makes no representation as to the compatibility of these files with your hardware and/or software. The Contractor shall understand that the automated conversion of information and data from the system and format used by ADW to an alternate system or format cannot be accomplished without the introduction of inaccuracies, anomalies and errors, whether inadvertently or otherwise. In the event project documentation provided in electronic machine-readable format is so converted, the Contractor agrees to assume all risks associated therewith and, to the fullest extent permitted by law, to hold harmless and indemnify ADW from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising therefrom in connection therewith.

Data contained on these electronic machine-readable files is part of ADW's instruments of service and shall not be used by the Contractor or anyone else receiving this data through and from the Contractor for any purpose other than as a convenience in the preparation of documents pertaining to the specific project as indicated on the files furnished. The Contractor recognizes that changes or modifications to ADW's instruments of professional service introduced by anyone other than ADW may result in adverse consequences, which ADW can neither predict nor control. Therefore, and in consideration of ADW's agreement to deliver its instruments of professional service in an electronic machine-readable format, the Contractor agrees, to the fullest extent permitted by law, to hold harmless and indemnify ADW from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising out of or in any way connected with the modification, misinterpretation, misuse, or reuse by others of the electronic machine-readable information and data provided by ADW under this agreement. The foregoing indemnification applies, without limitation, to any use of the project documentation on other projects, for additions, or for completion by others, excepting only such use as may be authorized, in writing, by ADW.

These electronic or machine-readable files are not Contract Documents. Significant differences may exist between these electronic machine-readable files and corresponding hard copy Contract Documents due to addenda, change orders or other revisions. ADW makes no representation regarding the accuracy or completeness of the electronic or machine-readable files you receive. In the event that a conflict arises between the signed Contract Documents prepared by ADW and the electronic machine-readable files, signed Contract Documents shall govern. The Contractor is responsible for determining if any conflict exists. By your use of these files, you are not relieved of your duty to fully comply with the Contract Documents, including and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other Contractors.

Under no circumstances shall delivery of the electronic machine-readable files for use by The Contractor be deemed a sale by ADW and ADW makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall ADW Architects be liable for any loss of profit or any consequential damages. Usage by any parties of the data contained in the electronic machine-readable files released shall constitute agreement to these terms. However, for record keeping we request that you sign this agreement, copy it for your files and return the original hard copy to us along with requested files and the required payment for this service.

**The cost of providing this service will be \$90.00 per CAD file request payable to:**

**ADW Architects, pa  
Six Coliseum Center  
2815 Coliseum Center Drive  
Suite 500  
Charlotte, N.C. 28217**

Acknowledged and accepted by:

\_\_\_\_\_  
**Company**

\_\_\_\_\_  
**Authorized Representative**

\_\_\_\_\_  
**Date**



## SECTION 01 40 00 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 2. Review Divisions 02 through 49 sections for specific test and inspection requirements.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

#### 1.4 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

#### 1.5 SUBMITTALS

- A. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.
- C. Not later than 30 calendar days after the Notice to Proceed date, the contractor shall furnish to the Architect for review a complete list of all subcontractors and all material and equipment to be used in the Project showing the manufacturer, supplier, trade name, and model number of each. Where the specification allows a choice, the list shall indicate the Contractor's choice. This list shall follow the sequence of the sections of the specifications.

#### 1.6 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- B. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
- C. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- F. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

#### 1.7 QUALITY CONTROL



- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
1. Testing agency will notify Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  5. Testing agency will retest and reinspect corrected work.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field-curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
  2. Notify testing agency and Architect at least 48 hours in advance of time required to perform testing services.
  3. Notify testing agency and Architect at least 72 hours in advance to inspect concrete reinforcing placement prior to pouring concrete or grouting masonry.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

## SECTION 01 41 00 - SPECIAL INSPECTIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to individual technical specification sections for specific qualifications, inspections, tests, frequency, and standards required.

#### 1.2 GENERAL REQUIREMENTS

- A. Special Inspections shall be in accordance with Chapter 17 of the International Building Code.
- B. The program of Special Inspection is a system intended to ensure that the work is performed in accordance with the Contract Documents. These services do not relieve the Contractor and/or the Construction Manager of responsibility for compliance with the requirements of the Contract Documents.
- C. This specification section is intended to inform the Contractor and/or the Construction Manager of the Owner's Special Inspection program and the extent of the responsibilities. This specification section is also intended to notify the Special Inspector, Testing Company/Testing Laboratory, and other Agents of the Special Inspector of their requirements and responsibilities.
- D. Perform inspections in accordance with industry standard referenced for specific material or procedure unless other criteria are specified. In the absence of a referenced standard, perform inspections in accordance with generally accepted industry standards.
- E. Failure to detect defective work or materials shall in no way prevent later rejection if defective work or materials are discovered.

#### 1.3 SCHEDULE OF SPECIAL INSPECTIONS

- A. Required Special Inspections are described on the Drawings.

#### 1.4 DEFINITIONS

- A. Testing: Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.
- B. Inspection: Evaluation of systems, primarily requiring observation and judgment.

- C. Special Inspection: Special Inspection herein includes items required by the current State Building Code, and other items which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure.
- D. Structural Engineer of Record (SER): The Licensed Engineer in responsible charge of the structural design for the project.
- E. Testing Agency (TA):
  - 1. Testing Agency: Approved independent materials testing agency acceptable to the Owner, Architect, and SER.
- F. Special Inspector (SI): A licensed professional engineer responsible for administering and performing all Special Inspections required by the Statement of Special Inspections.
- G. Agents of Special Inspection (AI): Individual inspectors performing specific Special Inspections on behalf of the Special Inspector.
- H. Building Official: The Officer or duly authorized representative charged with the administration and enforcement of the State Building Code.

#### 1.5 QUALIFICATIONS

- A. The Special Inspector shall be a licensed Professional Engineer (licensed in state in which project is located) experienced with the type of work requiring Special Inspections, who is approved by the Owner, Structural Engineer of Record (SER) and Building Official.
- B. Required inspector's qualifications for the Special Inspector and Agents of the Special Inspector are described in the attached Statement of Special Inspection.

#### 1.6 SUBMITTALS

- A. The Special Inspector shall submit to the Owner for review a copy of their qualifications which shall include the names and qualifications of each of the agents of Special Inspection who will be performing inspections.

#### 1.7 PAYMENT

- A. The Owner shall engage and pay for the services of the Special Inspector and Agents of the Special Inspector.
- B. The Contractor and/or Construction Manager shall be responsible for the cost of any re-inspection of work which fails to comply with the requirements of the Contract Documents.

#### 1.8 RESPONSIBILITIES/AUTHORITY

- A. Special Inspection:

1. Special Inspector and Agents of Special Inspections:
  - a. Sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.
  - b. Inspect the work assigned for conformance with the contract documents and applicable material and workmanship provisions of the code. Perform inspection in a timely manner to avoid delay of work.
  - c. Bring nonconforming items to the immediate attention of the Contractor and/or Construction Manager for correction, then, if uncorrected after a reasonable period of time, to the attention of the Structural Engineer of Record, the Building Official, and to the Owner.
  - d. Submit inspection reports to the Contractor and/or Construction Manager, the Structural Engineer of Record, Owner, and other designated persons in accordance with the Statement of Special Inspection.
  - e. Submit a final signed report stating whether the work requiring Special Inspection was, to the best of the Special Inspector's knowledge, in conformance with the contract documents and the applicable workmanship provisions of the code.
2. Architect:
  - a. Expedite resolution of construction issues.
3. Structural Engineer of Record:
  - a. Identify items requiring Special Inspection and define qualifications of Special Inspector required for work.
  - b. Prepare and sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.
  - c. Review reports issued by Special Inspector.
  - d. Assist in resolution of construction issues identified by Special Inspector.
4. Testing Agency:
  - a. When engaged as a Special Inspector, provide Special Inspection services as noted in Item 1.8.A.1.
  - b. Copy Special Inspector on all materials testing reports.
5. Contractor/Construction Manager:
  - a. Arrange and attend all pre-construction meetings to review scope of Special Inspection. Include the Building Official, Owner, Architect, Structural Engineer of Record, Special Inspector, Testing Agency, and other parties concerned.
  - b. Post or make available the Statement of Special Inspection within the project site office. Provide timely notification to those parties designated on the schedule so they may properly prepare for and schedule their work.
  - c. Provide Special Inspector access to the approved plans and specifications at the project site.
  - d. Review all reports issued by Special Inspector.
  - e. Retain at the project site all reports submitted by the Special Inspector for review by the building official upon request.
  - f. Correct, in a timely manner, deficiencies identified in inspection reports.

- g. Provide safe access to the work requiring inspection.
  - h. Provide labor and facilities to provide access to the work and to facilitate inspection.
  - i. Sign the Contractor's Statement of Responsibility, if required, prior to commencing construction.
- 6. Fabricator/Supplier:
  - a. Submit one copy of all material certificates and other quality assurance documents as required in the Statement of Special Inspections to the Special Inspector.
- 7. Building Official:
  - a. Accept and sign completed Statement of Special Inspection.
  - b. Review the final report submitted by Special Inspector.
  - c. Determine work, which, in the Building Official's opinion, involves unusual hazards or conditions (IBC 1705.1.1 – Special Cases).
- 8. Owner:
  - a. Provide and pay cost of Special Inspection services.
  - b. Provide Special Inspector with Contract Documents and accepted shop drawings.
  - c. Provide Special Inspector with full access to the site at all times.
  - d. Sign the Statement of Special Inspection in conjunction with other responsible parties prior to commencing construction.

#### 1.9 INSPECTION NOTES

- A. Contractor and/or Construction Manager provide minimum of 24 hours' notice for all items requiring inspection. Do not construct items requiring inspection services until testing and inspection services are available. Do not enclose or obscure items requiring inspection services until inspection services are performed.

#### 1.10 LIMITS ON AUTHORITY

- A. The Special Inspector may not release, revoke, alter, or increase the requirements of the Contract Documents.
- B. The Special Inspector will not have control over the Contractor and/or Construction Manager means or methods of construction.
- C. The Special Inspector shall not be responsible for construction site safety.
- D. The Special Inspector has no authority to stop the work.

## 1.11 DAILY RECORDS AND REPORTS

- A. Detailed daily reports shall be prepared by Special Inspector and Agents of Special Inspection of each inspection and submitted to the Special Inspector. Reports shall include, but not be limited to:
1. Date of inspection.
  2. Name of inspector or agent.
  3. Location of specific areas inspected.
  4. Description of inspection and results.
  5. Applicable ASTM standard.
  6. Weather conditions.
  7. Identification of product and specification section.
- B. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor and/or Construction Manager. If the discrepancies are not corrected, the Special Inspector shall notify the Structural Engineer of Record and Owner. Reports shall document all discrepancies identified and the corrective action taken.
- C. The Testing Company/Testing Laboratory shall immediately notify the Special Inspector of any test results which fail to comply with the requirements of the Contract Documents.

## 1.12 MONTHLY REPORTS

- A. Monthly reports shall be prepared by the Special Inspector. Reports shall include, but not be limited to:
1. Summary of elements inspected during that month.
  2. Copies of all discrepancies noted during that month.
  3. Report of status of discrepancies including resolution of discrepancies.
  4. Summary of all material certifications and quality assurance documents collected and reviewed during that month.

## 1.13 FINAL REPORT OF SPECIAL INSPECTIONS

- A. The Final Report of Special Inspections shall be completed by the Special Inspector and submitted to the Structural Engineer of Record, Owner, Contractor and/or Construction Manager, and Building Official prior to the issuance of a Certificate of Use and Occupancy.
- B. The Final Report of Special Inspections will certify that all required inspections have been performed and will itemize any discrepancies and how those discrepancies were resolved.

END OF SECTION 01 41 00





## SECTION 01 42 00 - REFERENCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
  - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl1@dom1

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434
CFR	Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr	(888) 293-6498 (202) 512-1530
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl2@dom1

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
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AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association www.ahardbd.org	(847) 934-8800
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.e-architect.com	(202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
ANLA	American Nursery & Landscape Association www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASTM	American Society for Testing and Materials www.astm.org	(610) 832-9585
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The)	(703) 620-0010

	www.bia.org	
CCFSS	Center for Cold-Formed Steel Structures www.umn.edu/~ccfss	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIMA	EIFS Industry Members Association www.eifsfacts.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FMG (FM)	FM Global (Formerly: FM - Factory Mutual System) www.fmgglobal.com	(401) 275-3000
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANNA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/ganna	(785) 271-0208
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSI	Light Gage Structural Institute www.loseke.com	(972) 370-0967
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association) www.lma.org	(201) 664-2700
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(312) 201-0193
MFMA	Metal Framing Manufacturers Association	(312) 644-6610
MIA	Marble Institute of America www.marble-institute.com	(614) 228-6194
NAAMM	National Association of Architectural Metal Manufacturers	(312) 332-0405

	<a href="http://www.naamm.org">www.naamm.org</a>	
NAIMA	North American Insulation Manufacturers Association (The) <a href="http://www.naima.org">www.naima.org</a>	(703) 684-0084
NCMA	National Concrete Masonry Association <a href="http://www.ncma.org">www.ncma.org</a>	(703) 713-1900
NCPI	National Clay Pipe Institute <a href="http://www.ncpi.org">www.ncpi.org</a>	(414) 248-9094
NECA	National Electrical Contractors Association <a href="http://www.necanet.org">www.necanet.org</a>	(301) 657-3110
NEMA	National Electrical Manufacturers Association <a href="http://www.nema.org">www.nema.org</a>	(703) 841-3200
NETA	InterNational Electrical Testing Association <a href="http://www.netaworld.org">www.netaworld.org</a>	(303) 697-8441
NFPA	National Fire Protection Association <a href="http://www.nfpa.org">www.nfpa.org</a>	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council <a href="http://www.nfrc.org">www.nfrc.org</a>	(301) 589-6372
NGA	National Glass Association <a href="http://www.glass.org">www.glass.org</a>	(703) 442-4890
NHLA	National Hardwood Lumber Association <a href="http://www.natlhardwood.org">www.natlhardwood.org</a>	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority <a href="http://www.nlga.org">www.nlga.org</a>	(604) 524-2393
NPA	National Particleboard Association (See CPA)	
NRCA	National Roofing Contractors Association <a href="http://www.nrca.net">www.nrca.net</a>	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association <a href="http://www.nrmca.org">www.nrmca.org</a>	(888) 846-7622 (301) 587-1400
NSA	National Stone Association <a href="http://www.aggregates.org">www.aggregates.org</a>	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo and Mosaic Association, Inc. <a href="http://www.ntma.com">www.ntma.com</a>	(800) 323-9736 (703) 779-1022
NWWDA	National Wood Window and Door Association (See WDMA)	
PCI	Precast/Prestressed Concrete Institute <a href="http://www.pci.org">www.pci.org</a>	(312) 786-0300
PDCA	Painting and Decorating Contractors of America <a href="http://www.pdca.com">www.pdca.com</a>	(800) 332-7322 (703) 359-0826
PDI	Plumbing & Drainage Institute <a href="http://www.pdionline.org">www.pdionline.org</a>	(800) 589-8956 (508) 230-3516
RCSC	Research Council on Structural Connections <a href="http://www.boltcouncil.org">www.boltcouncil.org</a>	(800) 644-2400 (312) 670-2400
RMA	Rubber Manufacturers Association <a href="http://www.rma.org">www.rma.org</a>	(800) 220-7620 (202) 682-4800
SDI	Steel Deck Institute <a href="http://www.sdi.org">www.sdi.org</a>	(847) 462-1930
SDI	Steel Door Institute <a href="http://www.steeldoor.org">www.steeldoor.org</a>	(440) 899-0010
SGCC	Safety Glazing Certification Council <a href="http://www.sgcc.org">www.sgcc.org</a>	(315) 646-2234
SIGMA	Sealed Insulating Glass Manufacturers Association <a href="http://www.sigmaonline.org/sigma">www.sigmaonline.org/sigma</a>	(312) 644-6610
SJI	Steel Joist Institute	(843) 626-1995

SMACNA	www.steeljoist.org Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPI	The Society of the Plastics Industry www.plasticsindustry.org	(202) 974-5200
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 444-0242
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(312) 456-5590
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(800) 837-8303 (412) 281-2331
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TPI	Truss Plate Institute	(608) 833-5900
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl3		
BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl4@dom1

CPSC	Consumer Product Safety Commission	(800) 638-2772
	<a href="http://www.cpsc.gov">www.cpsc.gov</a>	(301) 504-0990
EPA	Environmental Protection Agency	(202) 260-2090
	<a href="http://www.epa.gov">www.epa.gov</a>	
OSHA	Occupational Safety & Health Administration	(202) 693-1999
	<a href="http://www.osha.gov">www.osha.gov</a>	
USPS	Postal Service	(202) 268-2000
	<a href="http://www.usps.com">www.usps.com</a>	

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00





## SECTION 01 45 29 - TESTING LABORATORY SERVICES

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. The Owner will employ and pay for the services of an independent testing laboratory to perform specified testing.
  - 1. Contractor shall cooperate with laboratory to facilitate the execution of its required services.
  - 2. The Contractor shall be fully responsible for seeing that all materials meet the Project requirements. Failure of the Architect or testing laboratory to detect defective work, workmanship, or materials shall in no way prevent rejection and the Contractor taking approved corrective action when such defects are discovered. The Architect shall not be obligated to make final acceptance.

#### 1.02 LABORATORY DUTIES:

- A. Cooperate with Architect and Contractor; provide qualified personnel.
- B. Perform specified inspections, sampling and testing of materials and methods of construction. Comply with specified standards and ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of the Work or products.
  - 1. Promptly submit written report of each test and inspection; one copy each to the Architect, Owner, Contractor, and one copy to Record Documents file. Each report shall, at a minimum, include:
    - a. Date issued.
    - b. Project title and number.
    - c. Testing laboratory name, address and telephone number.
    - d. Name and signature of laboratory inspector.
    - e. Date and time of sampling or inspection.
    - f. Record of temperature and weather conditions.
    - g. Date of test.
    - h. Identification of product and specification section.
    - i. Location of sample or test in the Project.
    - j. Type of inspection or test.
    - k. Results of tests and compliance with Contract Documents.
    - l. Interpretations of test results.
  - 2. Perform additional tests as required by the Architect or the Owner.

#### 1.03 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY:

- A. Laboratory
  - 1. Release, revoke, alter or enlarge on requirements of the Contract Documents.
  - 2. Approve or accept any portion of the Work.
  - 3. Perform any duties of the Contractor.
  - 4. Give instruction to the Contractor's workman in the field. All contact shall be with the Architect (or his representative) and the Contractor's Project Manager.

## 1.04 CONTRACTOR'S RESPONSIBILITIES:

- A. Cooperate with laboratory personnel, provide access to Work, to manufacturer's operations.
- B. Secure and deliver to the laboratory, adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.
- D. Furnish copies of products test reports as required.
- E. Furnish incidental labor and facilities:
  - 1. To provide access to Work to be tested.
  - 2. To obtain and handle samples at the Project site or at the source of the project to be tested.
  - 3. To facilitate inspections and tests.
  - 4. For storage and curing of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence. The contractor shall reimburse the owner if an inspection fails for a second time, the second test and any subsequent tests shall be paid for by the GC.
- G. The Contractor may for his own convenience, employ and pay for a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing. This shall be done with the understanding that:
  - 1. The additional testing shall be accomplished in accordance with the General Conditions;
  - 2. That the finds of such additional inspections, samplings, and testing shall in no way be binding upon the Owner and the Architect;
  - 3. That any such additional inspections, samplings and testing shall be performed at no additional cost to the Owner.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

END OF SECTION 01 45 29

## SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. See Division 01 for progress cleaning requirements.

#### 1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

#### 1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.
- B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.
- C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.
- D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

#### 1.4 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

#### 1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

#### 1.6 PROJECT CONDITIONS

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
  - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service

during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities clean and neat.
  - 2. Relocate temporary services and facilities as required by progress of the Work.
- C. Parking and Traffic Control: Contractor shall be responsible for obtaining and erecting street/parking lot signage as necessary to divert traffic away from staging areas, etc. Contractor is to coordinate signage requirements with the Town and Architect. All associated costs are to be borne by the Contractor. Contractor shall provide area for parking for subcontractors, Architect and Owner representatives.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Pavement: Comply with Division 32.
- C. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails, with galvanized barbed-wire top strand.
- D. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete bases for supporting posts.
- E. Wood Enclosure Fence: Plywood, 6 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- F. Lumber and Plywood: Comply with requirements in Division 06 Section "General Carpentry."
- G. Roofing: Standard-weight, mineral-surfaced, asphalt shingles or asphalt-impregnated and -coated, mineral-surfaced, roll-roofing sheet.
- H. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36.
- I. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- J. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
- K. Paint: Comply with requirements in Division 9 Section "Painting."
- L. Water: Potable.

### 2.2 EQUIPMENT

- A. Field Offices: Prefabricated, mobile units, or job-built construction with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water, drinking-water units, including paper cup supply.
  - 1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.
- E. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 2. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

- B. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.
1. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
  2. Connect temporary sewers to municipal system as directed by sewer department officials.
  3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
  4. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.
1. Provide rubber hoses as necessary to serve Project site.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Facilities will be located at sites approved by Owner.
1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
1. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- G. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
1. Install electric power service underground, unless overhead service must be used.
  2. Install power distribution wiring overhead and rise vertically where least exposed to damage.
- H. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  - 2. Provide one 100-W incandescent lamp per 500 sq. ft., uniformly distributed, for general lighting, or equivalent illumination.
  - 3. Provide one 100-W incandescent lamp every 50 feet in traffic areas.
  - 4. Provide one 100-W incandescent lamp per story in stairways and ladder runs, located to illuminate each landing and flight.
  - 5. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.
  
- J. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities.
  - 1. At each telephone, post a list of important telephone numbers, including police and fire departments, ambulance service, Architects' office, Engineers' offices and Owner's office.
  - 2. Provide an answering machine or voice-mail service and a facsimile machine on superintendent's telephone.
  - 3. Furnish superintendent with electronic paging device for use when away from field office.
  - 4. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access. Coordinate with Architect on location.
  - 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
  - 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
  
- B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.
  
- C. Dewatering Facilities and Drains: Comply with requirements in applicable Division 31 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
  
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 01 Section for progress cleaning requirements.
  - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
  
- E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

## 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- B. Material Storage Enclosure Fence: Install enclosure fence with lockable gates to completely enclose and hide the materials storage, or store as much material in locked trailers as practicable.
1. Set fixed 6'-0" high chain-link fence posts in compacted mixture of gravel and earth.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
  3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
  5. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  6. Protect air-handling equipment.
  7. Weatherstrip openings.
- F. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Locate fire extinguishers where convenient and effective for their intended purpose.
  2. Store combustible materials in containers in fire-safe locations.
  3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
  4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.



6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
7. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.5 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
  2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00



## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "Allowances" for products selected under an allowance.
  - 2. Division 01 Section "Alternates" for products selected under an alternate.
  - 3. Division 01 Section "References" for applicable industry standards for products specified.
  - 4. Division 01 Section "Closeout Procedures" for submitting warranties for contract closeout.
  - 5. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

#### 1.4 SUBMITTALS

- A. **Product List:** Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
  - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
  - 2. Form:
    - a. Specification Section number and title.
    - b. Proprietary name, model number, and similar designations
    - c. Manufacturer's name and address.
    - d. Supplier's name and address.
    - e. Installer's name and address.
    - f. Identification of items that require early submittal approval for scheduled delivery date.
  - 3. **Completed List:** Within sixty (60) days after date of commencement of the Work, submit three (3) copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  - 4. **Architect's Action:** Architect will respond in writing to Contractor within fifteen (15) days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
- B. **Substitution Requests:** Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. **Documentation:** Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
    - c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - d. Samples, where applicable or requested.
    - e. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - f. Cost information, including a proposal of change, if any, in the Contract Sum.
    - g. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
    - h. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
  - a. Form of Acceptance: Change Order.
  - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
  1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
  1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  5. Store products to allow for inspection and measurement of quantity or counting of units.
  6. Store materials in a manner that will not endanger Project structure.
  7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  9. Protect stored products from damage.

### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  - 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
  - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."
- D. All warranties/guarantees shall become effective on the date of Substantial Completion as established by the Architect. Written warranties/guarantees shall be signed by the manufacturer or subcontractor and countersigned by the Contractor. All warranties/guarantees shall be addressed to the Owner in care of the Architect.

## PART 2 - PRODUCTS

### 2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
  - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  - 4. Where products are accompanied by the term "as selected," Architect will make selection.
  - 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
  - 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
  - 1. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  - 2. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by the manufacturers that complies with requirements.
    - a. Substitutions may be considered, unless otherwise indicated.
  - 3. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with

- provisions in “Comparable Products” article to obtain approval for use of an unnamed product.
4. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in “Comparable Products” article to obtain approval for use of an unnamed product.
  5. Product Options: Where Specification paragraphs titled "Product Options” indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in “Product Substitutions” article.
  6. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
    - a. Substitutions may be considered, unless otherwise indicated.
  7. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect’s sample. Architect’s decision will be final on whether a proposed product matches satisfactorily.
    - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on “substitutions” for selection of a matching product.
  8. Visual Selection Specification: Where Specifications include the phrase “as selected from manufacturer’s colors, patterns, textures” or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase “standard range of colors, patterns, textures” or similar phrase, Architect will select color, pattern, or texture from manufacturer’s product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase “full range of colors, patterns, textures” or similar phrase, Architect will select color, pattern, or texture from manufacturer’s product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within sixty (60) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
  1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

2. Requested substitution must be made in writing directly from the Contractor and not from a subcontractor or material supplier.
3. Requested substitution does not require extensive revisions to the Contract Documents.
4. Requested substitution is consistent with the Contract Documents and will produce indicated results.
5. Substitution request is fully documented and properly submitted.
6. Requested substitution will not adversely affect Contractor's Construction Schedule.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work and that he waives all claims for additional reimbursement related to the substitution which subsequently become apparent.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
11. By forwarding a substitution request the Contractor represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.

### 2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
  1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00



## SECTION 01 73 00 – EXECUTION REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  1. Construction layout.
  2. Field engineering and surveying.
  3. General installation of products.
  4. Coordination of Owner-installed products.
  5. Progress cleaning.
  6. Starting and adjusting.
  7. Protection of installed construction.
  8. Correction of the Work.
- B. Related Sections include the following:
  1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  2. Division 01 Section "Submittal Procedures" for submitting surveys.
  3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
  4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

#### 1.3 QUALITY ASSURANCE

- 1.4 Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of construction affecting the Work.
  1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions. Upon acceptance of surfaces and conditions, any adjustments required for a satisfactory installation shall be made by the Contractor who accepted the Work.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

### 3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

B. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
- G. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- H. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
  - 1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00



## SECTION 01 73 29 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 07 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
  - 2. Divisions 02 through 49 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
    - a. Requirements in this Section apply to mechanical and electrical installations. Refer to Divisions 23 and 26 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

#### 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

### 1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- D. Cutting and Patching Conference: If extensive cutting and patching is required, before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION



- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as

possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 01 73 29

## SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Salvaging non-hazardous demolition and construction waste.
  - 2. Recycling non-hazardous demolition and construction waste.
  - 3. Disposing of non-hazardous demolition and construction waste.
- B. See Division 01 Section "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures and site improvements, and for disposition of hazardous waste.
- C. See Division 04 Section "Unit Masonry" for disposal requirements for masonry waste.

#### 1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible.

#### 1.4 SUBMITTALS

- A. Waste Management Plan: Submit 3 copies of plan within 2 weeks after the Notice to Proceed.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit 3 copies of report. Include separate reports for demolition and construction waste. Include the following information:
  - 1. Material category.
  - 2. Generation point of waste.
  - 3. Total quantity of waste in tons (tonnes).
  - 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
  - 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
  - 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
  - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, submit 3 copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

#### 1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Waste Management Conference: Conduct conference at Project site.

## 1.6 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification and waste reduction work plan. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Architect. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within 3 days of submittal return.
  2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Owner's Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to storage area designated by Owner.
5. Protect items from damage during transport and storage.

### 3.3 GENERAL WASTE RECYCLING

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

- a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

### 3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
  1. Pulverize concrete to maximum 4-inch size.
- B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
  1. Pulverize masonry to maximum 4-inch size.
  2. Clean and stack undamaged, whole masonry units on wood pallets.
- C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- D. Metals: Separate metals by type.
  1. Structural Steel: Stack members according to size, type of member, and length.
  2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- E. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- F. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
  1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- G. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
  1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- H. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- I. Plumbing Fixtures: Separate by type and size.

- J. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- K. Lighting Fixtures: Separate lamps by type and protect from breakage.
- L. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

### 3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.
- C. Wood Materials:
  - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
  - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
  - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

### 3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.



END OF SECTION 01 74 19



## SECTION 01 77 00 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Project Record Documents.
  - 3. Operation and maintenance manuals.
  - 4. Warranties.
  - 5. Instruction of Owner's personnel.
  - 6. Final cleaning.
- B. See Division 01 for requirements for Applications for Payment for Substantial and Final Completion.
- C. See Division 01 for submitting Final Completion construction photographs and negatives.
- D. See Divisions 02 through 49 for specific closeout and special cleaning requirements for products of those Sections.

#### 1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  - 2. Advise Owner of pending insurance changeover requirements.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
  - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 8. Complete startup testing of systems.
  - 9. Submit test/adjust/balance records.
  - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 11. Advise Owner of changeover in heat and other utilities.
  - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  - 13. Complete final cleaning requirements, including touchup painting.
  - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.
- C. As a further condition of Substantial Completion, the Contractor(s) shall certify that all remaining Work will be completed within 30 consecutive calendar days following the Date of Substantial Completion, and the failure to do so shall automatically reinstate the provisions for damages due the Owner as contained elsewhere in the Agreement or as provided by law for such period of time as may be required by the Contractor to fully complete the Work whether the Owner has occupied the Work or not.

### 1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 01.
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

### 1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

### 1.5 PROJECT RECORD DOCUMENTS (submit 2 hard copies and 2 electronic copies on CD of all record documents)

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
  - B. Record Drawings: Maintain and submit blue- or black-line white prints of Contract Drawings and Shop Drawings.
    - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
      - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
      - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
    - 3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
    - 4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
  - C. Record Specifications: Submit Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
    - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
    - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
    - 3. Note related Change Orders and Record Drawings, where applicable.
  - D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- 1.6 OPERATION AND MAINTENANCE MANUALS (submit 2 hard copies and 2 electronic copies on CD of all operation and maintenance manuals)
- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
    - 1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
    - 2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
  - B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets.

Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

- 1.7 WARRANTIES (submit 2 hard copies and 2 electronic copies on CD of all warranties)
- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
  - B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
    - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
    - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
    - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Provide instructors experienced in operation and maintenance procedures.
  - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
  - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
  - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline.
  - 1. Include instruction for system design and operational philosophy, review of documentation, operations, adjustments, troubleshooting, maintenance, and repair.

### 3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - g. Sweep concrete floors broom-clean in unoccupied spaces.
    - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - j. Remove labels that are not permanent.
    - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
      - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
    - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - m. Replace parts subject to unusual operating conditions.
    - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
    - q. Leave Project clean and ready for occupancy.

- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00



# Division 02 – Existing Conditions



## SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. See Division 01 Section "Construction Waste Management and Disposal" for disposal of demolished materials.

#### 1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.3 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
  - 1. Comply with submittal requirements in Division 01 Section "Construction Waste Management and Disposal."

#### 1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Pre-demolition Conference: Conduct conference at Project site.

#### 1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove items as indicated on the Drawings.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

## 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

### 3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 5. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.
  - 4. Transport items to Owner's storage area as indicated on Drawings.
  - 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.

2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition, cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19





# Division 03 – Concrete



## SECTION 03 10 00 - CONCRETE FORMING AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Form-facing material for cast-in-place concrete.
- 2. Form liners.
- 3. Shoring, bracing, and anchoring.

- B. Related Requirements:

- 1. Section 32 13 13 "Concrete Paving" for formwork related to concrete pavement and walks.

#### 1.3 DEFINITIONS

- A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
- B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction, movement, contraction, and isolation joints
- c. Forms and form-removal limitations.
- d. Shoring and reshoring procedures.
- e. Anchor rod and anchorage device installation tolerances.

## 1.5 ACTION SUBMITTALS

## A. Product Data: For each of the following:

1. Exposed surface form-facing material.
2. Concealed surface form-facing material.
3. Forms for cylindrical columns.
4. Form liners.
5. Form ties.
6. Waterstops.
7. Form-release agent.

## B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
4. Laboratory Test Reports: For liquid floor treatments and curing and sealing compounds, indicating compliance with requirements for low-emitting materials.

## C. Shop Drawings: Prepared by, and signed and sealed by, a qualified professional engineer responsible for their preparation, detailing fabrication, assembly, and support of forms.

1. For exposed vertical concrete walls, indicate dimensions and form tie locations.
2. Indicate dimension and locations of construction and movement joints required to construct the structure in accordance with ACI 301.
  - a. Location of construction joints is subject to approval of the Architect.
3. Indicate location of waterstops.
4. Indicate form liner layout and form line termination details.
5. Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.

## 1.6 INFORMATIONAL SUBMITTALS

## A. Qualification Data: For testing and inspection agency.

## B. Research Reports: For insulating concrete forms indicating compliance with International Code Council Acceptance Criteria AC308.

## C. Field quality-control reports.

## D. Minutes of preinstallation conference.

## 1.7 QUALITY ASSURANCE

## A. Testing and Inspection Agency Qualifications: An independent agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Form Liners: Store form liners under cover to protect from sunlight.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
  - 1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
  - 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.
- B. Design, engineer, erect, shore, brace, and maintain insulating concrete forms in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
  - 1. Design cross ties to transfer the effects of the following loads to the cast-in-place concrete core:
    - a. Wind Loads: As indicated on Drawings.
      - 1) Horizontal Deflection Limit: Not more than 1/240 of the wall height.

## 2.2 FORM-FACING MATERIALS

- A. As-Cast Surface Form-Facing Material:
  - 1. Provide continuous, true, and smooth concrete surfaces.
  - 2. Furnish in largest practicable sizes to minimize number of joints.
  - 3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete, and as follows:
    - a. Plywood, metal, or other approved panel materials.
    - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      - 1) APA Structural 1 Plyform, B-B or better; mill oiled and edge sealed.
      - 2) APA Plyform Class I, B-B or better; mill oiled and edge sealed.

- B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
  - 1. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class.
  - 1. Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Form Liners:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Architectural Polymers, Inc.
    - b. Fitzgerald Formliners.
    - c. Sika Corporation.
    - d. Spec Formliners, Inc.
  - 2. Face Pattern: Smooth.

### 2.3 WATERSTOPS

- A. Flexible Rubber Waterstops: U.S. Army Corps of Engineers CRD-C 513, for embedding in concrete to prevent passage of fluids through joints, with factory fabricated corners, intersections, and directional changes.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
    - a. Williams Products, Inc.
  - 2. Profile: Flat dumbbell with center bulb.
  - 3. Dimensions: 4 inches by 3/16 inch thick; nontapered.
- B. Flexible PVC Waterstops: U.S. Army Corps of Engineers CRD-C 572, for embedding in concrete to prevent passage of fluids through joints, with factory fabricate corners, intersections, and directional changes.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BoMetals, Inc.
    - b. Sika Corporation.
    - c. Vinylex Waterstop & Accessories.
  - 2. Profile: Flat dumbbell with center bulb.
  - 3. Dimensions: 4 inches by 3/16 inch thick; nontapered.

- C. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Carlisle Coatings & Waterproofing Inc.
    - b. CETCO, a Minerals Technologies company.
    - c. Concrete Sealants Inc.
    - d. Sika Corporation.
- D. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer-modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Adeka Corporation.
    - b. CETCO, a Minerals Technologies company.
    - c. GCP Applied Technologies Inc.
    - d. Sika Corporation.

## 2.4 RELATED MATERIALS

- A. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- B. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034-inch- thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
  2. Form release agent for form liners shall be acceptable to form liner manufacturer.
- F. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION OF FORMWORK

- A. Comply with ACI 301.
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in Section 033000 "Cast-In-Place Concrete" for as-cast finishes.
- C. Limit concrete surface irregularities as follows:
  1. Surface Finish-1.0: ACI 117 Class D, 1 inch.
  2. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.
  3. Surface Finish-3.0: ACI 117 Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
  1. Minimize joints.
  2. Exposed Concrete: Symmetrically align joints in forms.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
  1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
  2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
  1. Provide and secure units to support screed strips
  2. Use strike-off templates or compacting-type screeds.
- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.
  1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
  2. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.



- J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
  - K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
    - 1. Determine sizes and locations from trades providing such items.
    - 2. Obtain written approval of Architect prior to forming openings not indicated on Drawings.
  - L. Construction and Movement Joints:
    - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
    - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
    - 3. Place joints perpendicular to main reinforcement.
    - 4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.
      - a. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
    - 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
    - 6. Space vertical joints in walls as indicated on Drawings.
      - a. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
    - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
    - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
  - N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
  - O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
  - P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.
- 3.2 INSTALLATION OF EMBEDDED ITEMS
- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.
    - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
4. Install dovetail anchor slots in concrete structures, as indicated on Drawings.
5. Clean embedded items immediately prior to concrete placement.

### 3.3 INSTALLATION OF WATERSTOPS

- A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm.
1. Install in longest lengths practicable.
  2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
  3. Allow clearance between waterstop and reinforcing steel of not less than 2 times the largest concrete aggregate size specified in Section 033000 "Cast-In-Place Concrete."
  4. Secure waterstops in correct position at 12 inches on center.
  5. Field fabricate joints in accordance with manufacturer's instructions using heat welding.
    - a. Miter corners, intersections, and directional changes in waterstops.
    - b. Align center bulbs.
  6. Clean waterstops immediately prior to placement of concrete.
  7. Support and protect exposed waterstops during progress of the Work.
- B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated on Drawings, according to manufacturer's written instructions, by adhesive bonding, mechanically fastening, and firmly pressing into place.
1. Install in longest lengths practicable.
  2. Locate waterstops in center of joint unless otherwise indicated on Drawings.
  3. Protect exposed waterstops during progress of the Work.

### 3.4 REMOVING AND REUSING FORMS

- A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work.

1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
  2. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
1. Align and secure joints to avoid offsets.
  2. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.5 SHORING AND RESHORING INSTALLATION

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.
- C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

### 3.6 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
1. Inspect formwork for shape, location, and dimensions of the concrete member being formed.
  2. Inspect insulating concrete forms for shape, location, and dimensions of the concrete member being formed.

END OF SECTION 03 10 00



## SECTION 03 20 00 - CONCRETE REINFORCING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Steel reinforcement bars.
- 2. Welded-wire reinforcement.

- B. Related Requirements:

- 1. Section 03 38 16 "Unbonded Post-Tensioned Concrete" for reinforcing related to post-tensioned concrete.
- 2. Section 03 41 00 "Precast Structural Concrete" for reinforcing used in precast structural concrete.
- 3. Section 32 13 13 "Concrete Paving" for reinforcing related to concrete pavement and walks.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction contraction and isolation joints.
- c. Steel-reinforcement installation.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For the following:

- 1. Each type of steel reinforcement.
- 2. Bar supports.
- 3. Mechanical splice couplers.

- B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
  2. Health Product Declaration: For each product.
  3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
- C. Shop Drawings: Comply with ACI SP-066:
1. Include placing drawings that detail fabrication, bending, and placement.
  2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Construction Joint Layout: Indicate proposed construction joints required to build the structure.
1. Location of construction joints is subject to approval of the Architect.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
1. Reinforcement To Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M
- B. Material Test Reports: For the following, from a qualified testing agency:
1. Steel Reinforcement:
    - a. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.
  2. Mechanical splice couplers.
- C. Field quality-control reports.
- D. Minutes of preinstallation conference.

#### 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- B. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Store reinforcement to avoid contact with earth.

## PART 2 - PRODUCTS

### 2.1 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.
- B. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
- C. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- D. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

### 2.2 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
  1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
    - a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.
- C. Mechanical Splice Couplers: ACI 318 Type 1, same material of reinforcing bar being spliced; tension-compression type.
- D. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch in diameter.
  1. Finish: Plain.

### 2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Protection of In-Place Conditions:
  - 1. Do not cut or puncture vapor retarder.
  - 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

## 3.2 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
  - 1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
  - 2. Do not tack weld crossing reinforcing bars.
- C. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with ACI 318.
- E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- F. Splices: Lap splices as indicated on Drawings.
  - 1. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
  - 2. Stagger splices in accordance with ACI 318.
  - 3. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
  - 4. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.
- G. Install welded-wire reinforcement in longest practicable lengths.
  - 1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice."
    - a. For reinforcement less than W4.0 or D4.0, continuous support spacing shall not exceed 12 inches.
  - 2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches for plain wire.
  - 3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
  - 4. Lace overlaps with wire.



## 3.3 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 1. Place joints perpendicular to main reinforcement.
  - 2. Continue reinforcement across construction joints unless otherwise indicated.
  - 3. Do not continue reinforcement through sides of strip placements of floors and slabs.
- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

## 3.4 INSTALLATION TOLERANCES

- A. Comply with ACI 117.

## 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
  - 1. Steel-reinforcement placement.
  - 2. Steel-reinforcement mechanical splice couplers.
  - 3. Steel-reinforcement welding.

END OF SECTION 03 20 00



## SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

- B. Related Requirements:

- 1. Section 03 10 00 "Concrete Forming and Accessories" for form-facing materials, form liners, insulating concrete forms, and waterstops.
  - 2. Section 03 20 00 "Concrete Reinforcing" for steel reinforcing bars and welded-wire reinforcement.
  - 3. Section 31 20 00 "Earth Moving" for drainage fill under slabs-on-ground.
  - 4. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.

#### 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with fly ash.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete Subcontractor.
  - 2. Review the following:

- a. Special inspection and testing and inspecting agency procedures for field quality control.
- b. Construction joints, control joints, isolation joints, and joint-filler strips.
- c. Semirigid joint fillers.
- d. Vapor-retarder installation.
- e. Anchor rod and anchorage device installation tolerances.
- f. Cold and hot weather concreting procedures.
- g. Concrete finishes and finishing.
- h. Curing procedures.
- i. Forms and form-removal limitations.
- j. Shoring and reshoring procedures.
- k. Methods for achieving specified floor and slab flatness and levelness.
- l. Floor and slab flatness and levelness measurements.
- m. Concrete repair procedures.
- n. Concrete protection.
- o. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
- p. Protection of field cured field test cylinders.

#### 1.5 ACTION SUBMITTALS

##### A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Aggregates.
4. Admixtures:
  - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
5. Vapor retarders.
6. Floor and slab treatments.
7. Liquid floor treatments.
8. Curing materials.
9. Joint fillers.
10. Repair materials.

##### B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
4. Laboratory Test Reports: For liquid floor treatments and curing and sealing compounds, indicating compliance with requirements for low-emitting materials.

##### C. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.

2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
10. Intended placement method.
11. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

D. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
  - a. Location of construction joints is subject to approval of the Engineer of Record.

E. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

## 1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Curing compounds.
4. Floor and slab treatments.
5. Bonding agents.
6. Adhesives.
7. Vapor retarders.
8. Semirigid joint filler.
9. Joint-filler strips.

10. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Aggregates.

D. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.

E. Research Reports:

1. For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
2. For sheet vapor retarder/termite barrier, showing compliance with ICC AC380.

F. Minutes of preinstallation conference.

#### 1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

#### 1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301.

#### 1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.

1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.

5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

### 2.2 CONCRETE MATERIALS

- A. Regional Materials: Concrete shall be manufactured within 100 miles of Project site from aggregates and cementitious materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles of Project site.
- B. Source Limitations:
1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
  2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
  3. Obtain aggregate from single source.
  4. Obtain each type of admixture from single source from single manufacturer.
- C. Cementitious Materials:
1. Portland Cement: ASTM C150/C150M, Type I/II, gray.
  2. Fly Ash: ASTM C618, Class C or F.
- D. Normal-Weight Aggregates: ASTM C33/C33M, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
1. Alkali-Silica Reaction: Comply with one of the following:
    - a. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
    - b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
    - c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance

with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.

2. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
  3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- E. Lightweight Aggregate: ASTM C330/C330M, 3/4-inch nominal maximum aggregate size.
- F. Air-Entraining Admixture: ASTM C260/C260M.
- G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
  2. Retarding Admixture: ASTM C494/C494M, Type B.
  3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
  4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
  5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
  6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- H. Water and Water Used to Make Ice: ASTM C94/C94M, potable.

### 2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 15 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Barrier-Bac; Intoplast Group.
    - b. ISI Building Products.
    - c. Poly-America, L.P.
    - d. Reef Industries, Inc.
    - e. Stego Industries, LLC.
    - f. Tex-Trude.
    - g. W.R. Meadows, Inc.

### 2.4 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BASF Corporation.
    - b. ChemMasters, Inc.



- c. ChemTec International.
  - d. Concrete Sealers USA.
  - e. Dayton Superior.
  - f. Euclid Chemical Company (The); an RPM company.
  - g. Kaufman Products, Inc.
  - h. Laticrete International, Inc.
  - i. Nox-Crete Products Group.
  - j. PROSOCO, Inc.
  - k. SpecChem, LLC.
  - l. US SPEC, Division of US MIX Company.
  - m. Vexcon Chemicals Inc.
  - n. V-Seal Concrete Sealers & Specialty Coatings.
  - o. W.R. Meadows, Inc.
2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## 2.5 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. BASF Corporation.
    - b. Bon Tool Co.
    - c. ChemMasters, Inc.
    - d. Dayton Superior.
    - e. Euclid Chemical Company (The); an RPM company.
    - f. Kaufman Products, Inc.
    - g. Lambert Corporation.
    - h. Laticrete International, Inc.
    - i. Metalcrete Industries.
    - j. Nox-Crete Products Group.
    - k. Sika Corporation.
    - l. SpecChem, LLC.
    - m. TK Products.
    - n. Vexcon Chemicals Inc.
    - o. W.R. Meadows, Inc.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
  1. Color:
    - a. Ambient Temperature Below 50 deg F: Black.
    - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
    - c. Ambient Temperature Above 85 deg F: White.

- C. Water: Potable or complying with ASTM C1602/C1602M.
- D. Clear, Waterborne, Membrane-Forming, Non-dissipating Curing Compound: ASTM C309, Type 1, Class B, certified by curing compound manufacturer to not interfere with bonding of floor covering.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Anti-Hydro International, Inc.
    - b. BASF Corporation.
    - c. ChemMasters, Inc.
    - d. Dayton Superior.
    - e. Euclid Chemical Company (The); an RPM company.
    - f. Kaufman Products, Inc.
    - g. Lambert Corporation.
    - h. Laticrete International, Inc.
    - i. Metalcrete Industries.
    - j. Nox-Crete Products Group.
    - k. SpecChem, LLC.
    - l. TK Products.
    - m. Vexcon Chemicals Inc.
    - n. W.R. Meadows, Inc.
- E. Clear, Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. ChemMasters, Inc.
    - b. Concrete Sealers USA.
    - c. Dayton Superior.
    - d. Euclid Chemical Company (The); an RPM company.
    - e. Kaufman Products, Inc.
    - f. Lambert Corporation.
    - g. Laticrete International, Inc.
    - h. Metalcrete Industries.
    - i. Nox-Crete Products Group.
    - j. Right Pointe.
    - k. SpecChem, LLC.
    - l. TK Products.
    - m. Vexcon Chemicals Inc.
    - n. W.R. Meadows, Inc.
  - 2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

## 2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

## 2.7 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4,100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5,000 psi at 28 days when tested in accordance with ASTM C109/C109M.

## 2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
  - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use water-reducing admixture in pumped concrete, concrete for parking structure slabs, and concrete with a w/cm below 0.50.

## 2.9 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 3,000 psi at 28 days.
  3. Maximum w/cm: 0.55.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content: 2.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4 inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- B. Class B: Normal-weight concrete used for foundation walls.
1. Exposure Class: ACI 318 F1, S0, W0, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content:
    - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- C. Class C: Normal-weight concrete used for interior slabs-on-ground.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 3,000 psi at 28 days.
  3. Maximum w/cm: 0.55.
  4. Minimum Cementitious Materials Content: 540 lb/cu. yd.
  5. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  6. Air Content: Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.

7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- D. Class E: Structural lightweight concrete used for interior suspended slabs and concrete toppings/pads over suspended slabs.
1. Exposure Class: ACI 318 F0, S0, W0, C0.
  2. Minimum Compressive Strength: 4,000 psi at 28 days.
  3. Calculated Equilibrium Unit Weight: 118 lb/cu. ft., plus or minus 3 lb/cu. ft. as determined by ASTM C567/C567M.
  4. Slump Limit: 3 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content: Do not use an air-entraining admixture or allow total air content to exceed 3 percent for concrete used in trowel-finished floors.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- E. Class F: Normal-weight concrete used for exterior slabs-on-ground, concrete toppings/pads over slabs-on-ground, exterior pads, and balcony topping slabs.
1. Exposure Class: ACI 318 F2, S0, W1, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Minimum Cementitious Materials Content: 540 lb/cu. yd.
  5. Slump Limit: 4 inches, plus or minus 1 inch.
  6. Air Content:
    - a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.
- F. Class J: Normal-weight concrete used for exterior retaining walls.
1. Exposure Class: ACI 318 F2, S0, W0, C0.
  2. Minimum Compressive Strength: 4,500 psi at 28 days.
  3. Maximum w/cm: 0.45.
  4. Slump Limit: 4 inches, plus or minus 1 inch, before adding high-range water-reducing or plasticizing admixtures at the Project site (8 inches, plus or minus 1 inch thereafter).
  5. Air Content:
    - a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
  6. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions:
  - 1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
  - 2. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
  - 1. Daily access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
  - 4. Security and protection for test samples and for testing and inspection equipment at Project site.

### 3.3 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
  - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
  - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

### 3.4 INSTALLATION OF VAPOR RETARDER

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
2. Face laps away from exposed direction of concrete pour.
3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
4. Lap joints 6 inches and seal with manufacturer's recommended tape.
5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
7. Protect vapor retarder during placement of reinforcement and concrete.
  - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.

### 3.5 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
  1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by the Engineer of Record.
  2. Place joints perpendicular to main reinforcement.
    - a. Continue reinforcement across construction joints unless otherwise indicated.
    - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
  3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
  4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  6. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
  7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
  1. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints:

1. Install dowel bars and support assemblies at joints where indicated on Drawings.
2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
  2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Engineer of Record and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer of Record in writing, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
1. If a section cannot be placed continuously, provide construction joints as indicated.
  2. Deposit concrete to avoid segregation.
  3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.



- a. Do not use vibrators to transport concrete inside forms.
  - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
  - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
  - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Do not place concrete floors and slabs in a checkerboard sequence.
  2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  3. Maintain reinforcement in position on chairs during concrete placement.
  4. Screed slab surfaces with a straightedge and strike off to correct elevations.
  5. Level concrete, cut high areas, and fill low areas.
  6. Slope surfaces uniformly to drains where required.
  7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
  8. Do not further disturb slab surfaces before starting finishing operations.

### 3.7 FINISHING FORMED SURFACES

#### A. As-Cast Surface Finishes:

1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
  - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
  - b. Remove projections larger than 1 inch.
  - c. Tie holes do not require patching.
  - d. Surface Tolerance: ACI 117 Class D.
  - e. Apply to concrete surfaces not exposed to public view.
2. ACI 301 Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/4 inch.
  - c. Patch tie holes.
  - d. Surface Tolerance: ACI 117 Class B.
  - e. Locations: Apply to concrete surfaces as indicated.
3. ACI 301 Surface Finish SF-3.0:
  - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
  - b. Remove projections larger than 1/8 inch.
  - c. Patch tie holes.
  - d. Surface Tolerance: ACI 117 Class A.

- e. Locations: Apply to concrete surfaces as indicated.
- B. Rubbed Finish: Apply the following to as cast surface finishes where indicated on Drawings:
- 1. Smooth-Rubbed Finish:
    - a. Perform no later than one day after form removal.
    - b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
    - c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
    - d. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 2. Grout-Cleaned Rubbed Finish:
    - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
    - b. Do not clean concrete surfaces as Work progresses.
    - c. Mix 1 part portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
    - d. Wet concrete surfaces.
    - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
    - f. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 3. Cork-Floated Finish:
    - a. Mix 1 part portland cement to 1 part fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint.
    - b. Mix 1 part portland cement and 1 part fine sand with sufficient water to produce a mixture of stiff grout. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
    - c. Wet concrete surfaces.
    - d. Compress grout into voids by grinding surface.
    - e. In a swirling motion, finish surface with a cork float.
    - f. Maintain required patterns or variances as shown on Drawings or to match field sample panels.
  - 4. Scrubbed Finish: After concrete has achieved a compressive strength of from 1,000 to 1,500 psi, apply scrubbed finish.
    - a. Wet concrete surfaces thoroughly and scrub with stiff fiber or wire brushes, using water freely, until top mortar surface is removed and aggregate is uniformly exposed.
    - b. Rinse scrubbed surfaces with clean water.
    - c. Maintain continuity of finish on each surface or area of Work.
    - d. Remove only enough concrete mortar from surfaces to match field sample panels.

## C. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

## 3.8 FINISHING FLOORS AND SLABS

## A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

## B. Scratch Finish:

1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
3. Apply scratch finish to surfaces to receive concrete floor toppings and to receive mortar setting beds for bonded cementitious floor finishes.

## C. Float Finish:

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 (ACI A117M) tolerances for conventional concrete.
3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

## D. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:

## a. Slabs on Ground:

- 1) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  25; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  17.
- b. Suspended Slabs:
  - 1) Specified overall values of flatness,  $F_F$  35; and of levelness,  $F_L$  20; with minimum local values of flatness,  $F_F$  24; and of levelness,  $F_L$  15. Levelness requirements may be waived for slabs on metal deck.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
  1. Coordinate required final finish with Architect before application.
  2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
  1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
  2. Coordinate required final finish with Architect before application.

### 3.9 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
  1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
  2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
  3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
  1. Coordinate sizes and locations of concrete bases with actual equipment provided.
  2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
  3. Minimum Compressive Strength: As indicated herein.
  4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
  5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
  6. Prior to pouring concrete, place and secure anchorage devices.

- a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - b. Cast anchor-bolt insert into bases.
  - c. Install anchor bolts to elevations required for proper attachment to supported equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.
1. Cast-in inserts and accessories, as shown on Drawings.
  2. Reinforce interior stairs that use concrete fill for the landings and/or treads with either microsynthetic monofilament fibers (at a minimum dosage rate of 1.0 lbs/cy) or 4x4-W1.4xW1.4 welded wire fabric.
  3. Screed, tamp, and trowel finish concrete surfaces.

### 3.10 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
  2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
  3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h, calculated in accordance with ACI 305.1, before and during finishing operations.
- B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
  2. If forms remain during curing period, moist cure after loosening forms.
  3. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
    - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
    - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
    - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
    - d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
    - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
      - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
      - 2) Maintain continuity of coating and repair damage during curing period.
- C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
1. Begin curing immediately after finishing concrete.
  2. Interior Concrete Floors:

- a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12-inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
    - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
    - b) Cure for not less than seven days.
  - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
  - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
    - a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
    - b) Cure for not less than seven days.
  - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:

- a) Water.
  - b) Continuous water-fog spray.
- c. Floors to Receive Polished Finish: Contractor has option of the following:
- 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
    - a) Lap edges and ends of absorptive cover not less than 12 inches.
    - b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
  - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
    - a) Water.
    - b) Continuous water-fog spray.
- d. Floors to Receive Curing Compound:
- 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
  - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
  - 3) Maintain continuity of coating, and repair damage during curing period.
  - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
- e. Floors to Receive Curing and Sealing Compound:
- 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
  - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
  - 3) Repeat process 24 hours later and apply a second coat. Maintain continuity of coating, and repair damage during curing period.

### 3.11 TOLERANCES

- A. Conform to ACI 117.

### 3.12 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than seven days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
4. Rinse with water; remove excess material until surface is dry.
5. Apply a second coat in a similar manner if surface is rough or porous.

### 3.13 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
  1. Defer joint filling until concrete has aged at least one month.
  2. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

### 3.14 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
  1. Repair and patch defective areas when approved by Architect.
  2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
    - a. Limit cut depth to 3/4 inch.
    - b. Make edges of cuts perpendicular to concrete surface.
    - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
    - d. Fill and compact with patching mortar before bonding agent has dried.
    - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.



- a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
  - b. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
  - a. Correct low and high areas.
  - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
3. After concrete has cured at least 14 days, correct high areas by grinding.
4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
  - a. Finish repaired areas to blend into adjacent concrete.
5. Correct other low areas scheduled to remain exposed with repair topping.
  - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
  - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
  - a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
  - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
  - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
  - d. Place, compact, and finish to blend with adjacent finished concrete.
  - e. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
  - a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
  - b. Dampen cleaned concrete surfaces and apply bonding agent.
  - c. Place patching mortar before bonding agent has dried.

- d. Compact patching mortar and finish to match adjacent concrete.
  - e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

### 3.15 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- 1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
  - 2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
  - 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
    - a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
      - 1) Project name.
      - 2) Name of testing agency.
      - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
      - 4) Name of concrete manufacturer.
      - 5) Date and time of inspection, sampling, and field testing.
      - 6) Date and time of concrete placement.
      - 7) Location in Work of concrete represented by samples.
      - 8) Date and time sample was obtained.
      - 9) Truck and batch ticket numbers.
      - 10) Design compressive strength at 28 days.
      - 11) Concrete mixture designation, proportions, and materials.
      - 12) Field test results.
      - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
      - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.

- D. Inspections:
1. Headed bolts and studs.
  2. Verification of use of required design mixture.
  3. Concrete placement, including conveying and depositing.
  4. Curing procedures and maintenance of curing temperature.
  5. Verification of concrete strength before removal of shores and forms from beams and slabs.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C143/C143M:
    - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
    - b. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete; ASTM C173/C173M volumetric method, for structural lightweight concrete.
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  4. Concrete Temperature: ASTM C1064/C1064M:
    - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
  5. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
    - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  6. Compression Test Specimens: ASTM C31/C31M:
    - a. Cast and laboratory cure two sets of four 6-inch by 12-inch or 4-inch by 8-inch cylinder specimens for each composite sample.
  7. Compressive-Strength Tests: ASTM C39/C39M.
    - a. Test one set of two laboratory-cured specimens at seven days and three sets of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5,000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5,000 psi.
  10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  11. Additional Tests:
    - a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer of Record.
    - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer of Record.
      - 1) Acceptance criteria for concrete strength shall be in accordance with ACI 301, section 1.6.6.3.
  12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- F. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of completion of floor finishing and promptly report test results to Architect.

### 3.16 PROTECTION

- A. Protect concrete surfaces as follows:
1. Protect from petroleum stains.
  2. Diaper hydraulic equipment used over concrete surfaces.
  3. Prohibit vehicles from interior concrete slabs.
  4. Prohibit use of pipe-cutting machinery over concrete surfaces.
  5. Prohibit placement of steel items on concrete surfaces.
  6. Prohibit use of acids or acidic detergents over concrete surfaces.
  7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

# Division 04 - Masonry



## SECTION 04 20 00 - UNIT MASONRY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
  1. Concrete masonry units.
  2. Decorative concrete masonry units.
  3. Mortar and grout.
  4. Reinforcing steel.
  5. Masonry joint reinforcement.
  6. Ties and anchors.
  7. Embedded flashing.
  8. Miscellaneous masonry accessories.
  9. Masonry-cell insulation.
  10. Cavity-wall insulation.
- B. Products installed, but not furnished, under this Section include the following:
  1. Steel lintels and shelf angles for unit masonry, furnished under Division 05.
  2. Manufactured reglets in masonry joints for metal flashing, furnished under Division 07.
  3. Hollow-metal frames in unit masonry openings, furnished under Division 08.

#### 1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Product Data: For each different masonry unit, accessory, and other manufactured product specified.
- B. Shop Drawings: Show fabrication and installation details for the following:
  1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
  2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection: For the following:
  1. Unit masonry Samples in small-scale form showing the full range of colors and textures available for each different exposed masonry unit required.
  2. Colored mortar Samples showing the full range of colors available.
- D. Samples for Verification: For the following:
  1. Full-size units for each different exposed masonry unit required, showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.

2. Colored mortar Samples for each color required, showing the full range of colors expected in the finished construction. Make samples using the same sand and mortar ingredients to be used on Project.
  3. Accessories embedded in the masonry.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article.
- F. Material Test Reports: From a qualified testing agency indicating and interpreting test results of the following for compliance with requirements indicated:
1. Each type of masonry unit required.
    - a. Include size-variation data for brick, verifying that actual range of sizes falls within specified tolerances.
    - b. Include test results, measurements, and calculations establishing net-area compressive strength of masonry units.
  2. Mortar complying with ASTM C 270
  3. Grout mixes complying with compressive strength requirements of ASTM C 476. Include description of type and proportions of grout ingredients.
- G. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
1. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
  2. Each material and grade indicated for reinforcing bars.
  3. Each type and size of joint reinforcement.
  4. Each type and size of anchor, tie, and metal accessory.
- H. Job Site Testing: The general contractor shall test three masonry units from two random loads of masonry block with an independent testing facility for compliance of the aggregate materials and mix.
- 1.5 QUALITY ASSURANCE
- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- C. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- D. Sample Panels: Before installing unit masonry, build sample panels, using materials indicated for the completed Work, to verify selections made under sample Submittals and to demonstrate aesthetic effects. Build sample panels for each type of exposed unit masonry assembly in sizes approximately **72 inches** long by **48 inches** high by full thickness (or as indicated on drawings).
1. Locate panels in the locations indicated or, if not indicated, as directed by Architect.
  2. Clean exposed faces of panels with masonry cleaner indicated.



3. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
  4. Protect approved sample panels from the elements with weather-resistant membrane.
  5. Maintain sample panels during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
    - a. Note approved sample panels not meeting the above requirements shall be removed and built back to quality standards.
    - b. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels, unless such deviations are specifically approved by Architect in writing.
  7. Demolish and remove sample panels when directed.
- E. If control joints are not shown on drawings, it is the Contractor's responsibility to notify the Architect for placement.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry. Exposed colored masonry block and brick shall be stored on wooden pallets.
- B. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- C. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Protect exposed exterior finished materials from mud and dirt splatters with sand or straw.
- B. Do not apply uniform floor or roof loads for at least 24 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
  1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
  2. Protect sills, ledges, and projections from mortar droppings.
  3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.
1. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

## PART 2 - PRODUCTS

### 2.1 CONCRETE MASONRY UNITS

- A. General: Provide shapes indicated and as follows:
1. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
  2. Provide square-edged units for outside corners, unless indicated as bullnose or other special shape.
- B. Concrete Masonry Units: ASTM C 90 (latest revision) and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2000 psi.
  2. Weight Classification: Light weight meeting max. 150 cpf density.
  3. Size (Width): Manufactured to the following dimensions:
    - a. 4 inches nominal; 3-5/8 inches actual.
    - b. 6 inches nominal; 5-5/8 inches actual.
    - c. 8 inches nominal; 7-5/8 inches actual.
    - d. 12 inches nominal; 11-5/8 inches actual.
    - e. 16 inches nominal; 15-5/8 inches actual.
  4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
  5. Units shall be free of organic impurities that will cause rusting, staining or pop outs, and shall contain no combustible matter. The use of coal cinder aggregate/bottom ash, or similar waste products WILL NOT be allowed.
  6. Job Site Testing: Per the request of the Architect, a random sample of the concrete masonry units may be taken from the job site to be tested for compliance with the specifications.
  7. All lightweight aggregates used in the concrete units shall be expanded shale, clay or slate stalite materials, produced by the rotary Kiln process, shall conform to ASTM C331, C330 and shall be graded to assure constant texture. Aggregates shall have a maximum absorption rate of 10%.
- C. Decorative Concrete Masonry Units: ASTM C 90 (latest revision) and as follows:
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 5000 psi or greater.
  2. Weight Classification: Normal weight.

3. Size: Manufactured to dimensions indicated for non-decorative units or as indicated on drawings.
  4. Exposed faces of decorative units: description matching color, pattern, and texture of Architect's samples.
    - a. Normal-weight aggregate, color integral, split-face finish integral color with white cement (requires white cement, pigment and white sand).
      - 1) Adams Products Company – Echelon Standard Masonry Split Face
      - 2) Johnson Concrete Company – Prestige Masonry Architectural Split Face
      - 3) Piedmont Block-Architectural Series
      - 4) Cemex
    - b. Substitutions from alternate manufactures shall be submitted 15-days before bid date.
- D. Integral Water Repellent: Provide all decorative concrete masonry units made with liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive according to ASTM E 514, with test period extended to 24 hours, show no visible water or leaks on the back of the test specimen. This admixture shall be W.R. Grace DRY BLOCK, ACM Chemistries RainBloc, BASF Rheopel Plus or approved substitute.

## 2.2 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- D. Pigmented Mortar: Colored cement or cement-lime formulation
  1. Color: Color as selected by Architect from manufacturer's full range of colors or as indicated on drawings.
  2. Location of Pigmented Mortar indicated below:
    - a. Decorative Concrete Masonry Units
      - 1) Normal-weight aggregate, split-face finish
  3. Products:
    - a. Colored Masonry Cement (ASTM-C 91):
      - 1) Available Manufacturers:
        - a) Cemex S.A.B. de C.V.; Richcolor Masonry Cement.
        - b) Holcim (US) Inc.; Rainbow Mortamix Custom Color Masonry Cement.
        - c) Argos US; Custom Color Masonry Cement.
        - d) Giant Cement Company
        - e) Or approved equal. (submit 10-days prior to bid date)
    - b. Colored Portland Cement-Lime Mix: (Type – S)
      - 1) Available Manufacturers:
        - a) Holcim - Rainbow CLS.
        - b) Argos US; Centurion Colorbond PL.
        - c) Lehigh Portland Cement Co.; Lehigh Custom Color Portland/Lime.
        - d) Or approved equal. (submit 10-days prior to bid date)

- E. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  - 1. Colored-Mortar Aggregates: Natural white sand or crushed stone to produce required mortar color.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
- H. Water: Potable (low chlorine content).

### 2.3 REINFORCING STEEL

- A. Uncoated Steel Reinforcing Bars: ASTM A 615, Grade 60.

### 2.4 MASONRY JOINT REINFORCEMENT

- A. General: ASTM A 951 and as follows:
  - 1. Hot-dip galvanized, carbon-steel wire for both interior and exterior walls.
  - 2. Wire Size for Side Rods: 9 gage U.N.O.
  - 3. Wire Size for Cross Rods: 9 gage U.N.O.
  - 4. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units where indicated.
- B. For single-wythe masonry, provide either ladder or truss type with single pair of side rods and cross rods spaced not more than 16 inches o.c.
- C. For multiwythe masonry, provide types as follows:
  - 1. Ladder type with perpendicular cross rods spaced not more than 16 inches o.c. and 1 side rod for each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod for each wythe of masonry 4 inches or less in width.
  - 2. Adjustable (2-piece) type with single pair of side rods and cross ties spaced not more than 16 inches o.c. and with separate adjustable veneer ties engaging the cross ties. Cross ties are either U-shaped with eyes or rectangular. Space side rods for embedment within each face shell of backup wythe and size adjustable ties to extend at least halfway through outer wythe but with at least 5/8-inch cover on outside face.
    - a. Use where indicated and where horizontal joints of facing wythe do not align with those of backup wythe.

### 2.5 TIES AND ANCHORS, GENERAL

- A. General: Provide ties and anchors, specified in subsequent articles, made from materials that comply with this Article, unless otherwise indicated.
- B. Hot-Dip Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60, commercial-quality, steel sheet zinc coated by hot-dip process on continuous lines before fabrication.

- D. Steel Sheet, Galvanized after Fabrication: ASTM A 366/A 366M cold-rolled, carbon-steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153.
- E. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

## 2.6 BENT WIRE TIES

- A. General: Rectangular units with closed ends and not less than 4 inches wide. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long may be used for masonry constructed from solid units or hollow units laid with cells horizontal.
  - 1. Where coursing between wythes does not align, use adjustable ties composed of 2 parts; 1 with pintles, the other with eyes; with maximum misalignment of 1-1/4 inches.
- B. Wire: Fabricate from hot-dip galvanized steel wire.

## 2.7 ADJUSTABLE ANCHORS FOR CONNECTING TO STEEL FRAME

- A. General: Provide two-piece hot-dip galvanized steel assemblies that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
  - 1. For anchorage to steel framing: provide manufacturer's standard anchors with crimped 1/4"-inch-diameter wire anchor section for welding to steel and triangular-shaped section 0.1875-inch diameter sized to extend within 1 inch of masonry face

## 2.8 RIGID ANCHORS

- A. General: Fabricate from steel bars as follows:
  - 1. 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins.
  - 2. Finish: Hot-dip galvanized to comply with ASTM A 153.

## 2.9 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:
  - 1. Headed bolts.
  - 2. Nonheaded bolts, bent or straight in manner indicated.

## 2.10 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with Division 07 Section "Sheet Metal Flashing and Trim."
  - 1. Metal Drip Edges: Fabricate from stainless steel, prefinished aluminum or as indicated on Drawings. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees.
  - 2. Metal Flashing Terminations: Fabricate from stainless steel, prefinished aluminum or as indicated on Drawings. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.

- B. For flashing partly exposed to the exterior, use metal flashing specified above. For flashing not exposed to the exterior, use one of the following flexible flashings, unless otherwise indicated:
1. Copper Fabric Flashing (Asphalt Free): Manufacturer's standard laminated flashing consisting of 5-oz./sq. ft. sheet copper bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry or cut flush with face of joint.
  2. Stainless Steel Fabric Flashing (Asphalt Free): 304 Stainless steel core, ASTM A167, with polymer fabric laminated to one stainless steel face with non-asphalt adhesive and polyether sealant.
    - a. Products of manufacturers listed below meeting indicated standards and specified manufacturer's product data characteristics, are acceptable for use, subject to compliance with specified requirements.
      - 1) York Manufacturing, Inc.; Multi-Flash SS
      - 2) STS Coatings, Inc.; Gorilla Flash Stainless Fabric
      - 3) Illinois Products, Inc.; IPCO Stainless Steel Fabric Flashing
      - 4) TK Products, Inc.; TK TWF
      - 5) GE: Elemax SS Flashing
- C. Solder and Sealants for Sheet Metal Flashings: As recommended by flashing manufacturer and compatible with insulations and other substrates.
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer and compatible with insulations and other substrates.
- E. Provide preformed corners and end-dams. Use minimum 26 gauge stainless steel pre-manufactured corners. Adhere and seal to flashing per manufacturers recommendations.
- F. Termination bar: Rigid PVC or stainless steel termination bar with sealant catch lip.
- 2.11 MISCELLANEOUS MASONRY ACCESSORIES
- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products: Use the following, unless otherwise indicated:
1. Mesh Weep/Vent: Provide free-draining mesh, made from polyethylene strands. At all flashing conditions, provide weep vents that are full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard to match mortar.
- E. Cavity Drainage Material: 1-inch thick, reticulated, non-absorbent mesh, made from polyethylene strands and shaped to maintain drainage at weep holes without being clogged by mortar droppings.
1. Product: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following products:

- a. Advanced Building Products Inc.; Mortar Break
- b. Archovations, Inc.; CavClear Masonry Mat
- c. Dayton Superior Construction, Dur-O-Wal Division; Polytite MortarStop
- d. Mortar Net USA, Ltd.; Mortar Net

## 2.12 MASONRY CELL INSULATION

- A. Loose-Granular Fill Insulation: Perlite complying with ASTM C 549, Type II (surface treated for water repellency and limited moisture absorption) or Type IV (surface treated for water repellency and to limit dust generation).
- B. Molded-Polystyrene Insulation Units: Rigid, cellular thermal insulation formed by the expansion of polystyrene-resin beads or granules in a closed mold to comply with ASTM C 578, Type I. Provide specially shaped units designed for installing in cores of masonry units.
- C. Foamed-in-Place Insulation: Install Core-Fill 500 as manufactured by Tailored Chemical Products. Install per manufacturer's recommendations. Product shall meet ASTM-E119, E84 and E136.

## 2.13 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of **1/2-cup** dry measure tetrasodium polyphosphate and **1/2-cup** dry measure laundry detergent dissolved in **1 gal.** of water.
- B. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  1. For masonry not subject to metallic oxidation stains, use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.
  2. For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids, and special inhibitors.

## 2.14 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
  1. Do not use calcium chloride in mortar or grout.
  2. Use integral water repellent for color integral CMU as noted in 2.1-D previously.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
  1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) at time of placement that will completely fill spaces intended to receive grout.
  2. Use fine grout in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
  3. Use coarse grout in grout spaces 2 inches or more in horizontal dimension, unless otherwise indicated.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
- B. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

## 3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this Section and in other Sections of the Specifications.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to the opening.
- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
  - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

## 3.3 CONSTRUCTION TOLERANCES

- A. Comply with tolerances in ACI 530.1/ASCE 6/TMS 602 and the following:
- B. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than **1/4 inch in 20 feet**, nor **1/2 inch** maximum.
- C. For vertical alignment of exposed head joints, do not vary from plumb by more than **1/4 inch in 10 feet**, nor **1/2 inch** maximum.
- D. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than **1/4 inch in 20 feet**, nor **1/2 inch** maximum.
- E. For exposed bed joints, do not vary from thickness indicated by more than plus or minus **1/8 inch**, with a maximum thickness limited to **1/2 inch**. Do not vary from bed-joint thickness of adjacent courses by more than **1/8 inch**.
- F. For exposed head joints, do not vary from thickness indicated by more than plus or minus **1/8 inch**. Do not vary from adjacent bed-joint and head-joint thicknesses by more than **1/8 inch**.



## 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal **4-inch** horizontal face dimensions at corners or jambs.
  - 1. One-half running bond with vertical joint in each course centered on units in courses above and below.
  - 2. Or as indicated on Drawings.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than **2 inches**. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal **4-inch** horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: In each course, rack back one-half-unit length for one-half running bond or one-third-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- F. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.
- G. Fill cores in hollow concrete masonry units with grout **24 inches** under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
  - 1. Install compressible filler in joint between top of partition and underside of structure above.
  - 2. At fire-rated partitions, install firestopping in joint between top of partition and underside of structure above to comply with Division 07.
- I. Cover all masonry walls at the end of each work day per TMS 402.

## 3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow masonry units as follows:
  - 1. With full mortar coverage on horizontal and vertical face shells.
  - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
  - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
- B. Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
  - 1. At cavity walls, bevel beds away from cavity, to minimize mortar protrusions into cavity. As work progresses, trowel mortar fins protruding into cavity flat against the cavity face of the brick.

- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than the joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

### 3.6 BONDING OF MULTI-WYTHE MASONRY

- A. Use continuous horizontal-joint reinforcement installed in horizontal mortar joints to bond wythes together. Stagger ties in alternate courses.
- B. Use bonding system indicated on Drawings.
- C. Corners: Provide interlocking masonry unit bond in each wythe and course at corners, unless otherwise indicated.
  - 1. Provide continuity with masonry joint reinforcement at corners by using prefabricated "L" units as well as masonry bonding.
- D. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, bond walls together as follows:
  - 1. Provide individual metal ties not more than 16 inches o.c.
  - 2. Provide continuity with masonry joint reinforcement by using prefabricated "T" units.
  - 3. Provide rigid metal anchors not more than 24 inches o.c. If used with hollow masonry units, embed ends in mortar-filled cores.

### 3.7 CAVITIES

- A. **Keep cavities clean of mortar droppings and other materials during construction.**
  - 1. Use wood strips temporarily placed in cavity to collect mortar droppings. As work progresses, remove strips, clean off mortar droppings, and replace in cavity.
- B. Coat cavity face of backup wythe to comply with Division 07 Section "Fluid Applied Air Barriers"
- C. Installing Cavity-Wall Insulation: Place small dabs of adhesive spaced approximately **12 inches** o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
  - 1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

### 3.8 MASONRY-CELL INSULATION

- A. Pour granular insulation into cavities to fill void spaces. Maintain inspection ports to show presence of insulation at extremities of each pour area. Close the ports after filling has been confirmed. Limit the fall of insulation to 1 story in height, but not more than **20 feet**.
- B. Install molded-polystyrene insulation units into masonry unit cells before laying units.
- C. Install foamed-in-place masonry per manufacturers recommendations. Patch holes as recommended by manufacturer.

## 3.9 HORIZONTAL MASONRY JOINT REINFORCEMENT

- A. General: Provide continuous masonry joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 16 inches. This reinforcement is in addition to continuous reinforcement.
1. Space reinforcement not more than 16 inches o.c.
  2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
  3. Provide reinforcement not more than 8 inches above and below wall openings and extending 32 inches beyond openings.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

## 3.10 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
1. Provide an open space not less than **1 inch** in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
  2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.
  3. Space anchors as indicated, but not more than **24 inches** o.c. vertically and **36 inches** o.c. horizontally.

## 3.11 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement. If joints are not indicated, install them as per National Concrete Masonry Association (NCMA) and Brick Industry Association (BIA) recommendations.
- B. Form control joints in concrete masonry as follows:
1. Install preformed control-joint gaskets designed to fit standard sash block.
  2. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar or rake joint.
- C. Form expansion joints in brick made from clay or shale as follows:
1. Where indicated on drawings, build flanges of metal expansion strips into masonry. Lap each joint **4 inches** in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints, if any.
  2. Form open joint of width indicated, but not less than **3/8 inch** for installation of sealant and backer rod specified in Division 07 Section "Sealants." Keep joint free and clear of mortar.
- D. Build in horizontal, pressure-relieving joints where indicated; construct joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Sealants."

1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry veneer and attached to structure behind masonry veneer.

E. See quality assurance, 1.5-E, control joint placement.

### 3.12 LINTELS

A. Install steel lintels where indicated.

B. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

### 3.13 FLASHING, WEEP HOLES, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Unless otherwise indicated, place through-wall flashing on sloping bed of mortar and apply sealant under flashing. Cover flashing with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

C. Install flashing as follows:

1. At multiwythe masonry walls, including cavity walls, extend flashing from exterior face of outer wythe of masonry, through outer wythe, turned up a minimum of **8 inches**, and through inner wythe to within **1/2 inch** of the interior face of the wall in exposed masonry. Where interior surface of inner wythe is concealed by furring, carry flashing completely through inner wythe and turn flashing up approximately **2 inches**, unless otherwise indicated.
2. At masonry-veneer walls, extend flashing from exterior face of veneer, through veneer, up face of sheathing at least **8 inches**, and behind air-infiltration barrier or building paper. Terminate flashing with a non-corrosive termination bar per manufacturer's recommendations.
3. At lintels and shelf angles, extend flashing a minimum of **4 inches** into masonry at each end. At heads and sills, extend flashing **4 inches** at ends and seal into preformed end-dams per manufacturer's recommendations.
4. Cut flashing off flush with face of wall after masonry wall construction is completed.

D. Install weep holes in the head joints in exterior wythes of the first course of masonry immediately above embedded flashing and as follows:

1. Use specified weep/vent products to form weep holes.
2. Space weep holes **24 inches** o.c., unless otherwise indicated.

E. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.

F. Install preformed flashing corners per manufacturer's recommendations.

G. Install all laps of flashing with minimum 6" lap. Adhere/seal laps per manufacturer's recommendations.

### 3.14 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores to support reinforced masonry elements during construction.
  - 1. Construct formwork to conform to shape, line, and dimensions shown. Make it sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements of ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
  - 1. Comply with requirements of ACI 530.1/ASCE 6/TM for cleanouts and for grout placement, including minimum grout space and maximum pour height

### 3.15 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
  - 5. Clean brick by the bucket-and-brush hand-cleaning method described in BIA Technical Notes No. 20, using job-mixed detergent solution.
  - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

### 3.16 MASONRY WASTE DISPOSAL

- A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Disposal as Fill Material: Dispose of clean masonry waste, including broken masonry units, waste mortar, and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

1. Crush masonry waste to less than 4 inches in each dimension.
  2. Mix masonry waste with at least two parts of fill material for each part of masonry waste.
  3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of waste off Owner's property.

END OF SECTION 04 20 00

# Division 05 - Metals





## SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Structural steel.
2. Shear stud connectors.
3. Shrinkage-resistant grout.

- B. Related Requirements:

1. Section 05 12 13 "Architecturally Exposed Structural Steel Framing" for additional requirements for architecturally exposed structural steel.
2. Section 05 31 00 "Steel Decking" for field installation of shear stud connectors through deck.
3. Section 05 50 00 "Metal Fabrications" for miscellaneous steel fabrications and other steel items not defined as structural steel.
4. Section 09 96 00 "High-Performance Coatings" for painting requirements.

#### 1.3 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

#### 1.4 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

#### 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

## 1.6 ACTION SUBMITTALS

## A. Product Data:

1. Structural-steel materials.
2. High-strength, bolt-nut-washer assemblies.
3. Shear stud connectors.
4. Anchor rods.
5. Threaded rods.
6. Shop primer.
7. Shrinkage-resistant grout.

## B. Sustainable Design Submittals:

1. Environmental Product Declaration: For each product.
2. Health Product Declaration: For each product.
3. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.

## C. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

## D. Delegated-Design Submittal: For structural-steel connections indicated on Drawings to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.7 INFORMATIONAL SUBMITTALS

## A. Qualification Data: For fabricator.

## B. Welding certificates.

## C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

## D. Mill test reports for structural-steel materials, including chemical and physical properties.

## E. Product Test Reports: For the following:

1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
2. Direct-tension indicators.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shear stud connectors.

## 1.8 QUALITY ASSURANCE

- A. Fabricator Qualifications: The Fabricator must meet at least one of the two following requirements.
1. A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).
  2. A qualified fabricator with a minimum of 5 years' experience in fabricating structural steel similar to that indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the work. The fabricator shall retain, at no cost to the owner, a structural engineer to oversee an inspection process as directed by the Engineer of Record. The structural engineer shall submit a summary letter and all supporting documentation to the Engineer of Record for approval. The letter shall be signed and sealed by an engineering licensed in the state where the project is located, and must be approved by the Engineer of Record prior to fabrication.
- B. Installer Qualifications: The Installer must meet at least one of the two following requirements.
1. A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
  2. A qualified and experienced installer who has completed structural steel work similar in material, design, and extent to that indicated for the project, and with a record of successful in-service performance for a minimum of 5 years.
- C. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
  2. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
  3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Comply with applicable provisions of the following specifications and documents:
  - 1. ANSI/AISC 303.
  - 2. ANSI/AISC 360.
  - 3. RCSC's "Specification for Structural Joints Using High-Strength Bolts."
- B. Connection Design Information:
  - 1. Design connections and final configuration of member reinforcement at connections in accordance with ANSI/AISC 303 by fabricator's qualified professional engineer.
    - a. Use Load and Resistance Factor Design; data are given at factored-load level.
- C. Moment Connections: Type PR, partially restrained.
- D. Construction: As indicated.

## 2.2 STRUCTURAL-STEEL MATERIALS

- A. W-Shapes: ASTM A992/A992M.
- B. Channels, Angles: ASTM A36/A36M.
- C. Plate and Bar: ASTM A36/A36M, and ASTM A572/A572M, Grade 50 as indicated.
- D. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B structural tubing.
- E. Steel Pipe: ASTM A500/A500M, Grade B.
  - 1. Weight Class: Standard, or as indicated.
  - 2. Finish: Black except where indicated to be galvanized.
- F. Welding Electrodes: Comply with AWS requirements.

## 2.3 BOLTS AND CONNECTORS

- A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
- B. High-Strength A490 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A490, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.

- C. Shear Stud Connectors: ASTM A108, AISI C-1015 through C-1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

## 2.4 RODS

- A. Unheaded Anchor Rods: ASTM F1554, Grade 36, or Grades 55 and 105 as indicated on the Drawings.

1. Configuration: Straight.
2. Nuts: ASTM A563 heavy-hex carbon steel.
3. Plate Washers: ASTM A36/A36M carbon steel.
4. Washers: ASTM F436, Type 1, hardened carbon steel.
5. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

- B. Headed Anchor Rods: ASTM F1554, Grade 36, or Grades 55 and 105 as indicated on the Drawings.

1. Configuration: Straight.
2. Nuts: ASTM A563 heavy-hex carbon steel.
3. Plate Washers: ASTM A36/A36M carbon steel.
4. Washers: ASTM F436, Type 1, hardened carbon steel.
5. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

- C. Threaded Rods: ASTM A36/A36M.

1. Nuts: ASTM A 63 heavy-hex carbon steel.
2. Washers: ASTM F436, Type 1, hardened carbon steel.
3. Finish: Hot-dip zinc coating, ASTM A153/A153M, Class C.

## 2.5 PRIMER

- A. Steel Primer:

1. Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

- B. Galvanized-Steel Primer: MPI#134.

1. Etching Cleaner: MPI#25, for galvanized steel.
2. Galvanizing Repair Paint: ASTM A780/A780M.

## 2.6 SHRINKAGE-RESISTANT GROUT

- A. Non-metallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, non-metallic aggregate grout, non-corrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

## 2.7 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.
  - 1. Camber structural-steel members where indicated.
  - 2. Fabricate beams with rolling camber up.
  - 3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.
  - 4. Mark and match-mark materials for field assembly.
  - 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
  - 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted in accordance with SSPC-SP 1.
- F. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using automatic end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.
- G. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-opening framing to be attached to structural-steel frame. Straighten as required to provide uniform, square, and true members in completed wall framing. Build up welded framing, weld exposed joints continuously, and grind smooth.
- H. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
  - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
  - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
  - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

## 2.8 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

## 2.9 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel in accordance with ASTM A123/A123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
2. Galvanize items as indicated on the Drawings.

## 2.10 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
5. Galvanized surfaces.

- B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:

1. SSPC-SP 2.
2. SSPC-SP 3.

- C. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.
  - 1. Do not remove temporary shoring supporting composite deck construction and structural-steel framing until cast-in-place concrete has attained its design compressive strength.

### 3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.
- B. Base Plates, Bearing Plates, and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
  - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
  - 2. Weld plate washers to top of baseplate.
  - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
  - 4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.
- C. Maintain erection tolerances of structural steel within ANSI/AISC 303.
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
  - 1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.
  - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.



### 3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.
  - 1. Joint Type: Snug tightened.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
  - 1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
  - 2. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

### 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:
  - 1. Verify structural-steel materials and inspect steel frame joint details.
  - 2. Verify weld materials and inspect welds.
  - 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
  - 1. Bolted Connections: Inspect and test bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
  - 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.
    - a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
      - 1) Liquid Penetrant Inspection: ASTM E165/E165M.
      - 2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
      - 3) Ultrasonic Inspection: ASTM E164.
      - 4) Radiographic Inspection: ASTM E94/E94M.

### 3.6 PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing, and repair galvanizing to comply with ASTM A780/A780M.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing, and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 05 12 00

## SECTION 05 31 00 - STEEL DECKING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Composite floor deck.
- B. Related Requirements:
  - 1. Section 03 30 00 "Cast-in-Place Concrete" for normal-weight and lightweight structural concrete fill over steel deck.
  - 2. Section 05 12 00 "Structural Steel Framing" for shop- and field-welded shear connectors.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of deck, accessory, and product indicated.
- B. Sustainable Design Submittals:
  - 1. Product Data: For recycled content, indicating post-consumer and pre-consumer recycled content and cost.
- C. Shop Drawings:
  - 1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Product Certificates: For each type of steel deck.
- C. Product Test Reports: For tests performed by a qualified testing agency, indicating that each of the following complies with requirements:
  - 1. Power-actuated mechanical fasteners.

## 1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."
- B. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- C. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

## 2.2 COMPOSITE FLOOR DECK

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Canam Steel Corporation; Canam Group, Inc.
  - 2. Cordeck.
  - 3. DACS, Inc.
  - 4. Epic Metals Corporation.
  - 5. Marlyn Steel Decks, Inc.
  - 6. New Millennium Building Systems, LLC.
  - 7. Nucor Corp.
  - 8. Roof Deck, Inc.
- B. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel

Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 50, G60 zinc coating.
2. Profile Depth: As indicated.
3. Design Uncoated-Steel Thickness: As indicated.
4. Span Condition: As indicated.

### 2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.
- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of same material and finish as deck, and of thickness and profile recommended by SDI Publication No. 31 for overhang and slab depth.
- G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.
- H. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0747 inch thick, with factory-punched hole of 3/8-inch minimum diameter.
- I. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.
- J. Galvanizing Repair Paint: ASTM A780/A780M.
- K. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.
- B. Install temporary shoring before placing deck panels if required to meet deflection limitations.
- C. Locate deck bundles to prevent overloading of supporting members.
- D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.
- I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

### 3.3 FLOOR DECK INSTALLATION

- A. Fasten floor deck panels to steel supporting members as indicated.
- B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports as indicated.
- C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
  - 1. End Joints: Lapped or butted at Contractor's option.
- D. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.
- E. Floor Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Field welds will be subject to inspection.
- C. Prepare test and inspection reports.

3.5 PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

END OF SECTION 05 31 00





## SECTION 05 40 00 - COLD-FORMED METAL FRAMING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

##### A. Section Includes:

1. Exterior non-load bearing wall framing.
2. Interior non-load bearing wall framing exceeding height limitations of standard, non-structural metal framing.
3. Soffit framing.

##### B. Related Requirements:

1. Section 05 50 00 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.
2. Section 09 21 16.23 "Gypsum Board Shaft Wall Assemblies" for interior non-load bearing, metal-stud-framed, shaft-wall assemblies, with height limitations.
3. Section 09 22 16 "Non-Structural Metal Framing" for standard, interior non-load bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

##### B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

- C. Delegated-Design Submittal: For cold-formed steel framing.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Welding certificates.
- C. Product Certificates: For each type of code-compliance certification for studs and tracks.
- D. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
  - 1. Steel sheet.
  - 2. Expansion anchors.
  - 3. Power-actuated anchors.
  - 4. Mechanical fasteners.
  - 5. Vertical deflection clips.
  - 6. Horizontal drift deflection clips
  - 7. Miscellaneous structural clips and accessories.
- E. Evaluation Reports: For non-standard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

## 1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.
- B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- C. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association or the Steel Stud Manufacturers Association.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AllSteel & Gypsum Products, Inc.
  - 2. ClarkDietrich.
  - 3. Craco Manufacturing, Inc.

4. Custom Stud.
5. Formetal Co. Inc. (The).
6. Jaimes Industries.
7. MarinoWARE.
8. MBA Building Supplies.
9. MRI Steel Framing, LLC.
10. Nuconsteel, A Nucor Company.
11. Southeastern Stud & Components, Inc.
12. State Building Products, Inc.
13. Steel Construction Systems.
14. Steel Structural Systems.
15. Super Stud Building Products Inc.
16. Telling Industries.
17. The Steel Network, Inc.
18. United Steel Deck, Inc.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design cold-formed steel framing.
- B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
  1. Design Loads: As indicated on Drawings.
  2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
    - a. Exterior Non-Load bearing Framing: Horizontal deflection of 1/240 of the wall height. Increase limit to 1/600 of the wall height at locations backing up brick façade.
    - b. Interior Non-Load bearing Framing: Horizontal deflection of 1/240 of the wall height under a horizontal load of 5 lbf/sq. ft.
  3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 80 deg F.
  4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
    - a. Upward and downward movement of 3/4 inch.
  5. Design exterior non-load bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- C. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:
  1. Wall Studs: AISI S211.
  2. Headers: AISI S212.

- D. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.

### 2.3 COLD-FORMED STEEL FRAMING MATERIALS

- A. Steel Sheet: ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
  - 1. Grade: As required by structural performance.
  - 2. Coating: G60, A60, AZ50, or GF30.
- B. Steel Sheet for Vertical Deflection Clips: ASTM A653/A653M, structural steel, zinc coated, of grade and coating as follows:
  - 1. Grade: As required by structural performance.
  - 2. Coating: G60.

### 2.4 EXTERIOR NON-LOAD BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-5/8 inches.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-1/4 inches.
- C. Vertical Deflection Clips: Manufacturer's standard bypass or head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. AllSteel & Gypsum Products, Inc.
    - b. ClarkDietrich.
    - c. MarinoWARE.
    - d. Simpson Strong-Tie Co., Inc.
    - e. Steel Construction Systems.
    - f. The Steel Network, Inc.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with

flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:

1. Minimum Base-Metal Thickness: 0.0428 inch.
  2. Flange Width: 1 inch plus the design gap for one-story structures.
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

## 2.5 INTERIOR NON-LOAD BEARING WALL FRAMING

- A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0329 inch.
  2. Flange Width: 1-3/8 inches.
- B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0329 inch.
  2. Flange Width: 1-1/4 inches.
- C. Vertical Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. AllSteel & Gypsum Products, Inc.
    - b. ClarkDietrich.
    - c. MarinoWARE.
    - d. Simpson Strong-Tie Co., Inc.
    - e. The Steel Network, Inc.
- D. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch.
  2. Flange Width: 1 inch plus the design gap for one-story structures.
- E. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

## 2.6 SOFFIT FRAMING

- A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
  - 1. Minimum Base-Metal Thickness: 0.0428 inch.
  - 2. Flange Width: 1-5/8 inches, minimum.

## 2.7 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from ASTM A1003/A1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
  - 1. Supplementary framing.
  - 2. Bracing, bridging, and solid blocking.
  - 3. Web stiffeners.
  - 4. Anchor clips.
  - 5. End clips.
  - 6. Foundation clips.
  - 7. Gusset plates.
  - 8. Stud kickers and knee braces.
  - 9. Joist hangers and end closures.
  - 10. Hole-reinforcing plates.
  - 11. Backer plates.

## 2.8 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.
- B. Anchor Bolts: ASTM F1554, Grade 36, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A153/A153M, Class C.
- C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193, ICC-ES AC58, or ICC-ES AC308 as appropriate for the substrate.
  - 1. Uses: Securing cold-formed steel framing to structure.
  - 2. Type: Screw or adhesive anchor.
  - 3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5, unless otherwise indicated.
  - 4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.

- D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
  - 1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.
- F. Welding Electrodes: Comply with AWS standards.

## 2.9 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A780/A780M or SSPC-Paint 20.
- B. Non-metallic, Non-shrink Grout: Factory-packaged, non-metallic, non-corrosive, non-staining grout, complying with ASTM C1107/C1107M, and with a fluid consistency and 30-minute working time.
- C. Shims: Load bearing, high-density, multi-monomer, non-leaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.
- D. Sealer Gaskets: Closed-cell neoprene foam, 1/4-inch-thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

## 2.10 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  - 1. Fabricate framing assemblies using jigs or templates.
  - 2. Cut framing members by sawing or shearing; do not torch cut.
  - 3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    - b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.
  - 4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.
- C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.
- B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.
- C. Install load bearing shims or grout between the underside of load bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.
- D. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

#### 3.3 INSTALLATION, GENERAL

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
  1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.
- D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.



1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
  - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
  - b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

### 3.4 EXTERIOR NON-LOAD BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.
- B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
  1. Stud Spacing: As indicated on Drawings.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
  1. Install single deep-leg deflection tracks and anchor to building structure.
  2. Connect vertical deflection clips to bypassing studs and anchor to building structure.
  3. Connect drift clips to cold-formed steel framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
  1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.

2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
1. Install solid blocking at centers indicated on Shop Drawings.
- G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

### 3.5 INTERIOR NON-LOAD BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.
- B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
1. Stud Spacing: As indicated on Drawings.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Install single deep-leg deflection tracks and anchor to building structure.
  2. Connect vertical deflection clips to studs and anchor to building structure.
  3. Connect drift clips to cold-formed steel metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
  2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
  3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.
- F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 12 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
1. Install solid blocking at centers indicated on Shop Drawings.

- G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

### 3.6 ERECTION TOLERANCES

- A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
  - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

### 3.7 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.8 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 40 00



## SECTION 05 50 00 - METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Loose bearing and leveling plates.
  - 2. Loose steel lintels.
  - 3. Miscellaneous framing and supports.
  - 4. Metal edgings.
  - 5. Miscellaneous metal trim.
- B. Related Sections include the following:
  - 1. Division 05 Section "Structural Steel Framing" for structural-steel framing system components.
  - 2. Division 06 Section "General Carpentry" for metal framing anchors and other rough hardware.

#### 1.3 SUBMITTALS

- A. Product Data: For the following:
  - 1. Nonslip-aggregate surface finishes.
  - 2. Grout.
- B. Shop Drawings: Detail fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
  - 1. Provide templates for anchors and bolts specified for installation under other Sections.
- C. Samples for Verification: For each type and finish of extruded nosing and tread.
- D. Welding Certificates: Copies of certificates for welding procedures and personnel.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

#### 1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing metal fabrications similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."
  - 2. AWS D1.2, "Structural Welding Code--Aluminum."
  - 3. AWS D1.3, "Structural Welding Code--Sheet Steel."
  - 4. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

## 1.5 PROJECT CONDITIONS

- A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.6 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

### 2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- C. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
- D. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500.
- E. Steel Pipe: ASTM A500/A500M, Grade B, standard weight, unless another weight is indicated or required by structural loads.
- F. Slotted Channel Framing: Cold-formed metal channels with flange edges returned toward web and with 9/16-inch wide slotted holes in webs at 2 inches on center.
  - 1. Width of Channels: 1-5/8 inches.

2. Depth of Channels: As indicated.
3. Metal and Thickness: Galvanized steel complying with ASTM A 653/A 653M, structural quality, Grade 50 for, 0.108-inch, 0.079-inch or 0.064-inch nominal thickness, and Grade 33 for 0.054-inch, and 0.033-inch, with G60 coating.
4. Metal and Thickness: Cold rolled steel complying with ASTM A 1008/A1008M, Grade 33; 0.0966-inch, 0.0677-inch or 0.0528-inch minimum thickness (as required for load imposed).
5. Finish: Unfinished where not exposed.
6. Finish: Rust-inhibitive, baked-on, acrylic enamel finish where exposed to view or to the exterior.

G. Malleable-Iron Castings: ASTM A 47, Grade 32510.

H. Gray-Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

I. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

J. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

## 2.3 ALUMINUM

A. Aluminum Extrusions: ASTM B 221, alloy 6063-T6.

B. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, alloy 6061-T6.

## 2.4 PAINT

A. Shop Primers: Provide primers that comply with Division 9 Section "Painting."

B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

C. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.5 FASTENERS

A. General: Provide Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

- C. Anchor Bolts: ASTM F 1554, Grade 36.
- D. Machine Screws: ASME B18.6.3.
- E. Lag Bolts: ASME B18.2.1.
- F. Wood Screws: Flat head, carbon steel, ASME B18.6.1.
- G. Plain Washers: Round, carbon steel, ASME B18.22.1.
- H. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.1.
- I. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
- J. Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as needed.

## 2.6 GROUT

- A. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.



- F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- G. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.
- H. Allow for thermal movement resulting from the maximum change in ambient and surface temperatures (temperature range) by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and night-time sky heat loss.
- I. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
- J. Remove sharp or rough areas on exposed traffic surfaces.
- K. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

## 2.8 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates after fabrication.

## 2.9 LOOSE STEEL LINTELS

- A. Fabricate loose structural-steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
- B. Weld adjoining members together to form a single unit where indicated.
- C. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches, unless otherwise indicated.
- D. Shop prime loose steel lintels located in exterior walls.

## 2.10 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from structural-steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors 1-1/4 inches wide by 1/4 inch thick by 8 inches long at 24 inches on center, unless otherwise indicated.

3. Furnish inserts if units must be installed after concrete is placed.

C. Galvanize miscellaneous framing and supports where indicated.

#### 2.11 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from structural-steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices where possible.

B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 6 inches from each end, 6 inches from corners, and 24 inches o.c., unless otherwise indicated.

C. Galvanize miscellaneous steel trim where indicated on drawings.

#### 2.12 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

#### 2.13 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123, for galvanizing steel and iron products.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

#### 2.14 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

### PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- E. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

### 3.2 SETTING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
  - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
  - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

### 3.3 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings, if any.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
  - 1. Where grout space under bearing plates is indicated at girders supported on concrete or masonry, install as specified above for setting and grouting bearing and leveling plates.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified above for setting and grouting bearing and leveling plates.
  - 1. Do not grout baseplates of columns supporting steel girders until girders are installed and leveled.

#### 3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 Section "Painting."
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 50 00

# Division 06 – Wood, Plastics, and Composites



## SECTION 06 20 00 - GENERAL CARPENTRY

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to complete the general carpentry work, miscellaneous equipment and material installation.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
  - 1. Include data for wood-preserved and fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that the treated materials comply with requirements.

#### 1.3 QUALITY ASSURANCE:

- A. Lumber standards: Comply with DOC PS 20 and with applicable rules of the respective agencies for species and products specified.
- B. Plywood product standards: Comply with DOC PS 1 (ANSI A199.1) or, for products not manufactured under DOC PS 1 provisions, with applicable APA Performance Standard for type of panel indicated. Reference DOC PS 2 for OSB.

#### 1.4 PRODUCT HANDLING:

- A. Do not deliver shop fabricated carpentry items until site conditions are adequate to receive the work. Protect items from weather while in transit.
- B. Store indoors, in ventilated area with a constant, minimum temperature of 60 degrees F, maximum humidity of 25 to 55 percent.

### PART 2 - PRODUCTS

#### 2.1 LUMBER:

- A. Dimensions: Conform to standards established by the American Lumber Standards Committee.
- B. Moisture content: Unseasoned or 19% maximum at the time of permanent closing in of the structure.
- C. Surfacing: S4S.
- D. Miscellaneous lumber: Provide wood for support or attachment of other work including, but not limited to, cant strips, bucks, nailers, plates, blocking, bracing, furring, grounds, stripping and similar members. Provide lumber of sizes indicated, worked into shapes shown. Shall be #2, GM, SYP, KDAT (Kiln Dried After Treatment).

#### 2.2 PLYWOOD - GENERAL:

- A. Identify each panel with the appropriate grade APA trademark and shall meet the requirements of the latest edition of U.S. Product Standard PSI or one of APA's Performance Standards.
- B. All plywood which has an edge or surface permanently exposed to the weather shall be classed Exterior.
- C. Panel thickness, grade, and Group or Identification Index shall be at least equal to that shown on the Drawings. Installation shall be in accordance with the APA recommendations.

### 2.3 WOOD TREATMENT - PRESERVATIVE:

- A. Lumber or plywood shall be preservative treated in the following instances.
  - 1. Whenever wood is placed in the ground;
  - 2. Whenever wood is placed in water;
  - 3. Whenever wood comes in contact with masonry or concrete;
  - 4. Wherever wood is exposed to wetting and corrosive environments;
  - 5. Whenever wood would be susceptible to decay organisms or insects.
- B. Comply with applicable requirements of AWWA Standards U1. Mark each treated item with the AWWA Quality Mark Requirements.
- C. Water-borne preservatives shall comply with AWWA T1 applicable. After treatment, kiln-dry to a maximum moisture content of 15%.
- D. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

### 2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Comply with performance requirements in AWWA U1.
  - 1. Where indicated, use type USFB for exterior locations.
  - 2. Where indicated, use type USFB for interior locations.
- B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Application: Treat items where indicated on Drawings.

### 2.6 FASTENERS AND ANCHORAGE:

- A. Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommending nails.
- B. Where rough carpentry work is exposed to weather, in ground contact, or in area of high humidity, provide fasteners and anchorages with hot-dip zinc coating (ASTM A 153).



## PART 3 - EXECUTION

## 3.1 GENERAL:

- A. Discard units of material with defects, which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
- B. Set carpentry work accurately to required levels and lines, with members plumb, true and accurately cut and fitted.
- C. Securely attach carpentry work to substrate by anchoring and fastening as shown and as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.
- D. Use common wire nails, except as otherwise noted. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

## 3.2 WOOD GROUNDS, NAILERS, BLOCKING AND SLEEPERS:

- A. Provide for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Provide permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2" wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

END OF SECTION 06 20 00



## SECTION 06 22 00 – MILLWORK

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment and services required to furnish and install the millwork.

#### 1.2 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, the latest edition “Architectural Woodwork Standards” of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of these Contract Documents. Any reference to “premium”, “custom”, or “economy” shall be defined in the latest edition of AWI “Architectural Woodwork Standards”.

#### 1.3 SUBMITTALS:

- A. Prior to fabrication, submit to the Architect for review the following:
  - 1. Shop drawings that at a minimum shall show the following:
    - a. All materials (solid wood, plywood, fiberwood board, plastic laminate, solid surface, and hardware).
    - b. All thicknesses and dimensions.
    - c. Specie, grade and cut of woods and veneers.
    - d. Jointing and bolting.
    - e. The name of the manufacturer and the model number of all factory fabricated items.
    - f. Full size details drawn in related and dimensioned positions to facilitate checking of intersecting and string dimensions.
    - g. Clear description of work to be done in the shop and work to be done in the field.
  - 2. Manufacturer’s literature of specialty items not manufactured by the architectural woodworker.
  - 3. Physical samples:
    - a. Plastic laminate in all colors and patterns for the Architect’s selection.
    - b. Upon request, provide one unit of each type and finish of hardware
- B. Certification: Submit copies of certificate signed by woodwork shop certifying that millwork complies with quality grades and other requirements indicated. Form of certificate shall be approved by the Architect.

#### 1.4 PRODUCT HANDLING:

- A. Millwork shall not be delivered until the building and storage areas are sufficiently conditioned so that the millwork will not be damaged by excessive changes in moisture content.

### PART 2 - PRODUCTS

#### 2.1 CASEWORK, SHELVES AND COUNTERTOPS - PLASTIC LAMINATE FINISH:

- A. AWI quality grade: Custom
  - 1. Basis of Design (PL-1): Manufacturer: Wilsonart, Style: Pressed Linen 4991-38, fine velvet texture finish.
  - 2. Basis of Design (PL-2): Manufacturer: Wilsonart, Style: Tan Echo 7941K-18, linearity finish.
  - 3. Acceptable Manufacturers: Must match “Basis of Design” in color and pattern.

- a. Pionite
  - b. Nevamar
  - c. Arborite
4. See A700 Room Finish Schedule and series A900 casework elevation and section drawings for locations.
- B. Exposed surfaces – general purpose plastic laminate: 0.048 inches (1.2mm) nominal approximately 1/16" thick high-pressure plastic laminate; Vertical Surface Laminate Product 0.028 inch (0.7 mm) nominal and High Definition Laminate 0.039 inch (1.0 mm) nominal as required by AWI quality grade and conforming to NEMA LD 3, Grade HGS, VGS, VGP & HGP and ISO 4586, Grade HGS, VGS, VGP & HGP. Abrasion Class I.
- C. All plastic laminate countertops in which sinks occur shall have a core of exterior grade hardwood faced plywood.
- D. Casework body members (ends, divisions, fixed shelves, bottoms, tops, face frames, bases, rails, toe kicks, backs, drawer sides, drawer bottoms) to be made of cabinet grade plywood per AWI standards.
- E. Drawer fronts and cabinet doors with dimensions up to 30" width x 80" height shall be constructed from 3/4" minimum MDF or panel product.
- F. **NO PARTICLE BOARD IS ALLOWED ON SITE.**
- G. Provide all vertical and horizontal filler material required for a complete installation
- H. Edge banding shall be HPDL or .03 mm flat PVC color to coordinate with face laminate.
- I. Provide laminate on toe kicks that matches the base cabinet laminate.
- J. Grain pattern of laminate shall be in the same direction on all components, doors face, cabinet frame, drawer face, toe kick.
- 2.2 SOLID SURFACE COUNTER: (SSF)
- A. Non-porous solid surface 1/2" thickness unless otherwise noted on drawings.
- 1. Basis of Design: (SSF-1) Manuf.: Wilsonart, Color: 9232SS Peace Grey.
    - a. Finish: Matte
  - 2. Acceptable manufacturers: Substitutions must be submitted during the bidding period for approval by Architect.
    - a. Corian
    - b. Hanstone
    - c. Formica
  - 3. See drawings for locations of solid surface and profile trim where applicable. See Interior Finish Legend & Interior Room Schedule A700.
- B. Solid Surface Counter support where applicable:
- 1. Counter to be installed on square tube stock or angle iron support framing when not over cabinetry or casework. Support framing to include perimeter supports, perimeter supports at cutouts, and cross supports where necessary.
    - a. Maximum deflection of solid surface to be 1/8" (3 mm) over 10 feet (3 m)
  - 2. Where underlayment is indicated, install solid surface over 3/4" plywood underlayment. If spacers are required, they are to be moisture-resistant MDF or moisture-resistant plywood.
  - 3. All counter surfaces that do not have cabinets below require a 3/4" plywood substrate

- underlayment to avoid future cracking of the solid surface counter.
4. Solid surface counter edges at overhangs to be built-up construction unless noted otherwise.

### 2.3 CASEWORK HARDWARE:

- A. All cabinet hardware shall be furnished and installed by the casework manufacturer.
  1. Drawer slides:
    - a. Full extension slides for file drawers
    - b. White Euroslides for typical drawers
    - c. Manufacturers: Accuride, Mepla, Hafele, or Knappe & Vogt.
  2. Line boring with metal shelf clips.
  3. Hinges: 120-degree concealed casework hinges with self-closing feature.
    - a. Provide number of hinges per manufacturer's recommendations. In no case less than:
      - i. Three (3) hinges per door with a height 40" or greater or a weight between 15-30 lbs.
      - ii. Four (4) hinges per door with a height 60" or greater or a weight between 30-45 lbs.
      - iii. Five (5) hinges per door with a height of 80" or greater or a weight between 45-60 lbs.
    - b. Where wheelchair accessibility is required for base cabinets with sink, provide 170-degree concealed casework hinges with magnetic catches.
    - c. Manufacturers: Blum, Salice, Hafele or Grass.
  4. Pulls: as specified on drawings with brushed stainless steel finish.
  5. Locks: Cam locks where noted on drawings.
    - a. All locks to be separately keyed with a master key provided.
    - b. Manufacturers: National or approved equal.
  6. Silencers: Provide a minimum of 2 silencers for each cabinet door and drawer.

## PART 3 - EXECUTION

### 3.1 PREPARATION FOR FINISHING:

- A. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing of concealed surfaces and similar preparations for finishing of millwork as applicable to each unit of work.
- B. Shop Finishing: to the greatest extent possible, finish millwork at shop or factory. Defer only final touch-up, cleaning and polishing for times after delivery and installation.

### 3.2 PREPARATION FOR INSTALLATION:

- A. Condition millwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Coordinate installation of backing for support, before walls are built.

### 3.3 INSTALLATION:

- A. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level; and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.
- B. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.

- C. Anchor millwork to anchors or built-in blocking. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with millwork, and matching final finish where transparent finish is indicated.

#### 3.4 CASEWORK:

- A. Set and secure casework in place rigid, plumb and square.
- B. Use purpose designed fixture attachments for wall-mounted components. Attach wall-mounted cabinets in order that they can withstand all superimposed loading.
- C. Use thread steel concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
- D. Permanently fix cabinet and counter bases to floor using appropriate angles and anchorages.
- E. Counter-sink semi-concealed anchorage devices used to wall mount components, and conceal with solid plugs of species to match surrounding wood. Place flush with surrounding surfaces.
- F. Carefully scribe cabinetwork which is against other building materials leaving gaps of 1/32" maximum. Seal gaps with sealant tinted to match adjacent surfaces. Do not use additional overlay trim for this purpose.
- G. Install and adjust cabinet hardware to ensure smooth and correct operation.

#### 3.6 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

- A. Repair damaged and defective millwork wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace millwork. Adjust joinery for uniform appearance.
- B. Clean hardware, lubricate and make final adjustments for proper operation.
- C. Clean millwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- D. Provide final protection and maintain conditions, in a manner acceptable to fabricator and installer, which ensures millwork being without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 22 00

# Division 07 - Thermal & Moisture Protection





## SECTION 07 19 00 - WATER REPELLENTS

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. Provide all of the labor, materials, equipment, and services required to furnish and install the water repellent coating for masonry units.

#### 1.02 QUALITY ASSURANCE:

- A. Application of materials shall only be by an authorized applicator so designated and approved by the manufacturer.

#### 1.03 SUBMITTALS:

- A. Prior to application of materials, submit to the Architect for review the following:
  - 1. Manufacturer's literature fully describing the product and the method of application for this project. The method and rate of application shall be completely outlined in order that the Architect will be fully aware of the procedure.

### PART 2 - PRODUCTS

#### 2.01 WATER REPELLENT COATING:

- A. Zydex Zycosil Water Repellant  
Zydexindustries.com
- B. PROSOCO, Inc. Sure Klean Weatherseal Siloxane PD.
  - 1. For use on brick veneer.
- C. PROSOCO, Inc. Sure Klean Weatherseal Siloxane WB Concentrate.
  - 1. For use on concrete masonry units.
- D. Advanced Chemical Technologies Sil-ACT Dri-Trete WB.

### PART 3 - EXECUTION

#### 3.01 PREPARATORY WORK:

- A. Complete all caulking, pointing and repair work before commencing application. If the application must precede such work, care shall be taken to avoid application of water repellent coating to joint faces (such as contamination may cause sealant adhesion problems).
- B. All surfaces shall be structurally sound, clean and free of all dust, dirt, paint, bitumens, efflorescence, oil, pollution, deposits, curing, forming, and parting compounds. New masonry construction shall be fully cured and dry.
- C. Surface shall be dry and free of frost. After rainfall, allow surface to dry at least 2 to 3 days to avoid developing hazing effect.

#### 3.02 APPLICATION:

- A. Stir container just before using to assure the mixture of hydrophobic filler.
- B. Apply at any time when temperatures are above 40 deg. F. Apply directly from the container using a good quality brush, roller, airless or convention air type sprayer. Equip all sprayers with neoprene hose. All tools and equipment shall be clean prior to and during application to prevent possible staining or discoloring.
- C. Apply in a uniform manner that fully wets out the surface yet does not cause flooding or rundowns. "Pick off" any rundowns with a brush or dry roller to prevent unsightly lap or rundown marks.
- D. When spray applying, spray a uniform horizontal stroke followed by a uniform overlapping vertical stroke.
- E. Coverage rate: As recommended by the manufacturer.

### 3.03 CLEAN UP:

- A. If applied to glass or anodized aluminum, remove immediately by wiping with a clean cloth saturated with Xylene or Reducer 990 followed with a mild detergent wash.

END OF SECTION 07 19 00

## SECTION 07 21 16 - BLANKET INSULATION

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment, and services to furnish and install the blanket insulation.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Manufacturer's catalog data fully describing the product and indicating installation recommendations.

#### 1.4 DELIVERY:

- A. Deliver materials in original packages, containers, or bundles bearing manufacturer's labels. Labels shall indicate brand name and descriptive data confirming compliance with requirements herein specified.

#### 1.5 PROTECTION:

- A. Keep materials dry, protected against moisture, weather, and damage.

### PART 2 - PRODUCTS

#### 2.1 UN-FACED BATT INSULATION:

- A. Mineral or fiberglass composition conforming to ASTM C665, Type I. Produce insulation by combining thermosetting resins with mineral fibers manufactured from glass, slag wool or rock wool.
- B. Thickness: See Drawings.
  - 1. 3 1/2" = R-11
  - 2. 6" = R-19
  - 3. 9" = R-30
  - 4. 3 1/2" = R-11 for sound attenuation batts
- C. Provide nylon mesh for support where insulation is suspended between bottom chords of roof trusses.
- D. When used in fire-resistance-rated assemblies, comply with mineral-fiber requirements of assembly.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION:

- A. Install insulation in accordance with the manufacturer's printed instructions without gaps or

voids.

- B. Trim insulation to neatly and tightly fit spaces. Use batts free of damage.
- C. Install in the number of layers necessary to achieve the required thickness.
- D. Physically and permanently attach batts to framing so as to prevent downward slippage of batt. Support relying on friction alone will not be allowed.
- E. Back-fill above suspended ceiling systems:
  - 1. Install insulation between wire rods, perpendicular to ceiling system main tees. Batts should fit tightly together.
  - 2. Wire rod, chicken wire, or wire may be needed to hold insulation in place.
  - 3. Do not install insulation on top of, or within 3 inches of recessed light fixtures unless the fixtures are approved for such use.
  - 4. Refer to ceiling system manufacturer's recommendations on maximum back-loading recommendations and to ensure proper installation.

### 3.2 CLEAN UP:

- A. When work is completed in each area, remove debris, equipment, and excess material and leave area broom clean.

END OF SECTION 07 21 16

## SECTION 07 21 22 - MASONRY FILL INSULATION

### PART 1 - GENERAL

#### 1.01 SCOPE:

- A. Provide all of the labor, materials, equipment and services to furnish and install masonry fill or cavity wall insulation.

#### 1.02 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Manufacturer's catalog data fully describing the product and indicating installation recommendations.

#### 1.03 DELIVERY:

- A. Deliver materials in original packages, containers, or bundles bearing manufacturer's labels. Label shall indicate brand name and descriptive data confirming compliance with requirements herein specified.

#### 1.04 PROTECTION:

- A. Keep materials dry, protected against moisture, weather, and damage.

### PART 2 - PRODUCTS

#### 2.01 FOAMED-IN-PLACE INSULATION:

- A. Class A Rated foamed-in-place insulation with flame spread not to exceed 15, absorption not to exceed 5% and shrinkage factor of not more than 2%.
- B. Wall assembly to provide the following R-values:
  - 1. 12" CMU R=20
  - 2. 8" CMU R=14.2
  - 3. 1" Cavity R=4.9
- C. Foam Insulation shall be self-extinguishing or noncombustible and compliant with VOC regulations.
- D. Material shall achieve 4-hour requirements based on standard 2-hour rated 8" & 12" CMU as tested in conformance with ASTM E-119.
- E. Acceptable Products:
  - 1. Core Fill 500 by Tailored Chemical Products, Inc.; 1-800-627-1687.
  - 2. Polymaster R-501 by Polymaster Inc.; 1-800-580-3626.
  - 3. Or Approved Substitute

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Install insulation in strict accordance with manufacturer's printed installation instructions.
- B. Installer shall be licensed and approved by the manufacturer.
- C. Install thru mortar joints with 5/8" holes max. Repair wall surface as recommended by manufacturer.

3.02 CLEAN-UP:

- A. When work is completed in each area, remove debris, equipment and excess material, and leave area broom clean.

END OF SECTION 07 21 22

## SECTION 07 84 00 - THROUGH-PENETRATION FIRESTOP SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes through-penetration fire-stop systems for the following types of fire-resistance-rated assemblies:
  - 1. Floors.
  - 2. Roofs.
  - 3. Walls and partitions.
  - 4. Smoke barriers.
  - 5. Construction enclosing compartmentalized areas.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. F-Ratings: Provide firestop systems with F-ratings equaling or exceeding fire-resistance rating of constructions penetrated as determined per ASTM E 814/UL1479.
- B. T-Ratings: Provide firestop systems with T-ratings required, as well as F-ratings, determined per ASTM E 814/UL 1479, where systems protect penetrating items with potential to contact adjacent materials in occupiable floor areas including, but not limited, to the following:
  - 1. Penetrations located outside wall cavities.
  - 2. Penetrations located outside fire-resistive shaft enclosures.
  - 3. Penetrations located in construction containing fire-protection-rated openings.
  - 4. Penetrating items larger than 4-inch- diameter nominal pipe or 16 sq. in. in overall cross-sectional area.
- C. For firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant firestop systems.
  - 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
  - 3. For penetrations involving insulated piping, provide firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread indices of less than 25 and smoke-developed indices of less than 450, when tested per ASTM E 84.
- E. Proposed firestop materials and methods shall conform to applicable governing codes having local jurisdiction.
- F. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the structural engineer prior to penetrating any load bearing assembly.

- G. For those firestop applications that exist for which no UL tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests shall be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgment drawings shall follow requirements set forth by the International Firestop Council (September 7, 1994).

### 1.3 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include details of installation and design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
- C. Product certificates and test reports.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
- B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.
- C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature restrictions.
- D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
- E. Do not use damaged or expired materials.

### 1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide rated systems identical to those tested per ASTM E 814/UL 1479 and with products bearing the classification marking of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate firestop systems.

### 1.6 INSTALLER QUALIFICATIONS

- A. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the Firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its Firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.



## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Subject to compliance with through penetration firestop systems (XHEZ) and joint systems (XHBN) listed in Volume II of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:
  - 1. Hilti Construction Chemicals, Inc.
  - 2. 3M Fire Protection Products.
  - 3. Tremco; Sealant/Weatherproofing Division.
  - 4. Grace, W. R. & Co. - Conn.
- B. One manufacturer shall be used for Firestopping on entire project. Manufacturer shall be present at pre-construction meeting and provide training to installers.

## 2.2 FIRESTOP SYSTEMS

- A. Compatibility: Provide firestop systems that are compatible with the substrates forming openings, and with the items, if any, penetrating firestop systems, under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Provide components for each firestop system that are needed to install fill material. Use only components specified by the firestop system manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

## PART 3 - EXECUTION

## 3.1 INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Clean openings immediately before installing firestop systems.
  - 1. Remove foreign materials that could interfere with adhesion of firestop systems.
  - 2. Remove laitance and form-release agents from concrete.
  - 3. Produce clean, sound surfaces capable of developing optimum bond with firestop systems. Remove loose particles remaining from cleaning operation.
- C. Priming: Prime substrates when recommended in writing by firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not spill primers or allow them to migrate onto adjoining surfaces.
- D. Masking Tape: Use masking tape where required to prevent contact of firestopping with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove firestopping smears. Remove tape immediately after installation without disturbing firestopping seal.
- E. Accessories: Install accessories of types required to support fill materials during their application and in the position necessary to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials, remove combustible forming materials and other accessories that are not permanent components of firestop systems.
- F. Install fill materials for firestop systems by proven techniques.
1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- G. Identification: Identify firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible. Include the following information on labels:
1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Through-penetration firestop system designation of applicable testing and inspecting agency.
  4. Date of installation.
  5. Firestop system manufacturer's name.
  6. Installer's name.
- H. Clean excess fill materials adjacent to openings as installation progresses by methods and with cleaning materials that are approved in writing by manufacturers and that do not damage materials in which openings occur.

### 3.2 FIELD QUALITY CONTROL

- A. Do not cover up firestop system installations that will become concealed behind other construction until inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.
- B. Inspecting agency will state in each report whether inspected firestop systems comply with or deviate from requirements.
- C. Enclose firestop systems with other construction only after inspection reports are issued.
- D. Where deficiencies are found, repair or replace firestop systems to comply with requirements.

END OF SECTION 07 84 00

## SECTION 07 90 00 - SEALANTS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all of the labor, materials, equipment, and services required to furnish and install the sealant and caulking.
- B. The purpose of caulking in this Work is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Complete and fully descriptive manufacturer's literature for each type of sealant used naming product formulation and giving product limitations.
  - 2. Data proving the product meets or exceeds the ASTM number referenced.
  - 3. Color chart for the Architect's selection.
  - 4. Submit statements by the manufacturers and installers of their acceptance of these documents and conditions and/or any modification proposed to the use of the products. Include a statement from the manufacturer that the proposed use of the product for the conditions encountered is proper.
  - 5. Submit a guarantee warranting all defects of material and/or application for a period of five (5) years from Date of Substantial Completion. Any failure that may occur within this warranty period, due to defective application and/or materials shall, upon written notification of such failure, be repaired or replaced with proper materials and/or labor as approved by the Architect, at no additional cost to the Owner.

#### 1.3 DEFINITIONS:

- A. The terms "Sealant" and "Caulking" shall be used interchangeably throughout the Contract Documents and shall be interpreted to mean the same material.

### PART 2 - PRODUCTS

#### 2.1 SEALANT - EXPANSION JOINTS, CONTROL JOINTS, AND PERIMETER OF DOOR AND WINDOW FRAMES:

- A. Neutral Curing Silicone Sealant, conforming to ASTM C 920, Type S, Grade NS, Class 100 sealant. For use in all exterior building joints.
  - 1. Pecora 890/890 FTS (Field Tintable Silicone).
  - 2. Tremco Spectrum 1 or 2.
  - 3. Dow Corning 790/756 Building Sealant.
  - 4. Or an approved substitute.
- B. Joint Backing: Backer rod as recommended by sealant manufacturer.

- C. Where joint depth does not permit use of joint backing, a release paper or bond breaker shall be used.
- D. On horizontal joints, surface must be cleaned and primed using primer as recommended by the sealant manufacturer.

2.2 SEALANT - SETTING THRESHOLD; FLASHING; AND GENERAL SEALING NOT OTHERWISE DELEGATED:

- A. Dynatrol I  
Pecora Corp.  
Or an approved substitute.
- B. Joint Backing: Round closed-cell polyethylene.

2.3 PRIMERS:

- A. As recommended by the sealant manufacturer for use in conjunction with the sealant for application onto the various types of materials to which the sealant is applied, and complying with the requirements above. When the manufacturer's instructions make reference to use of primers and/or the construction condition requires special surface preparation, these instructions shall be complied with.

2.4 CLEANERS:

- A. Where required by manufacturer's instruction in lieu of primers, shall be of the type and kind recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.1 CHOICE OF CAULKING MATERIAL:

- A. Use only that caulking material which is best suited to the installation and is so recommended by the caulking material manufacturer.

3.2 BACK-UP MATERIALS:

- A. Verify the compatibility of filler materials with caulking before installation.
- B. Use filler about 1/3 to 1/2 wider than width of joint so sufficient pressure is exerted by filler to provide substantial resistance to displacement.
- C. All filler materials shall be non-oily, non-staining, back-up filler such as polyethylene foam rod, expanded polyurethane, neoprene or other filler completely compatible with the caulking material.

3.3 APPLICATION OF CAULKING:

- A. Do not caulk under weather conditions or sun conditions potentially harmful to the set and

curing of the caulking material.

- B. Deliver materials to the job or place of application in original unopened containers bearing manufacturer's name and product designation.
- C. Install caulking in strict accordance with the manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by the manufacturer, and to immediately remove all surplus caulking.

#### 3.4 CAULKING SCHEDULE:

- A. Carefully study the Drawings and furnish and install the proper caulking at each point where called for on the Drawings plus at all other points, whether specifically designated or not, where caulking is essential in maintaining the continued integrity of the intended watertight barrier.

END OF SECTION 07 90 00



# Division 08 - Openings





## SECTION 08 14 16 - FLUSH WOOD DOORS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services to furnish and install the flush wood doors.

#### 1.2 QUALITY ASSURANCE:

- A. Comply with the applicable requirements of the following standards unless otherwise indicated.
  1. ANSI/WDMA I.S. 1-78, "Industry Standard for Wood Flush Doors".
  2. UL10-C fire test for mineral core fire doors.
  3. Provide doors with fire-resistance ratings indicated or required to comply with governing regulations.
  4. All labeled doors shall be manufactured in accordance with the specifications procedures of the Underwriter's Laboratories. All labeled doors shall physically bear the U.L. label showing the rating required.

#### 1.3 SUBMITTALS:

- A. Prior to fabrication, submit the following to the Architect for review:
  1. Complete and fully descriptive manufacturer's literature.
  2. Shop drawings: Sizes, face veneer, edge construction, core construction, necessary details, and factory finishing.
  3. Door schedule: Show door sizes, opening numbers or designations and elevations, door type, fire classification marking, swing, light and louver cutout sizes and locations, and undercut.
  4. Physical sample: Cross section at door corner.
  5. Certification: Submit written certification signed by an officer of the manufacturing firm that shall certify that the materials delivered to this work comply in all respects with the requirements of the Contract Documents.

#### 1.4 GUARANTEE:

- A. Submit written guarantee for use for the life of the installation, including repair and/or replacement, and refinishing of defective material in accordance with the standard door guarantee of the National Woodwork Manufacturer's Association.

#### 1.5 PRODUCT HANDLING:

- A. Package each door at the factory in separate heavy paper-type carton or poly bag. Mark each carton or door for location to correspond with opening number on Drawings.

### PART 2 – PRODUCTS

#### 2.1 INTERIOR DOORS - SOLID CORE - FOR STAIN FINISH: (D)

- A. WDMA Premium Grade 5-Ply Hot Press Construction
- B. Species and Cut: Basis of Design – (D-1)
  1. Plain sliced White Oak, Book match and balance match – Factory finish where clear.

2. Medium Density Overlay – Factory paint finish where paint is called for. Provide custom colors as indicated on drawings.
- C. Core construction:
1. Non-rated: Structural Composite Lumber SCLC
  2. Rated: Mineral - 45 minute or greater. Furnish Category “A” imbedded intumescent insert.
  3. Provide 5" inner blocking at top rail of mineral core doors.
  4. Provide inner blocking for locks and panics at mineral core doors.
  5. Provide bonded core assembly.
- D. Subject to compliance of all specifications in this section.  
Acceptable manufacturers are:
1. Basis of Design: Masonite Architectural
  2. Eggers Industries; Architectural Door Division.
  3. VT Industries
  4. Oshkosh Architectural Door Company.
  5. Graham Manufacturing.
  6. Lambton Doors.
- E. Factory Finish: Manufacturer's standard finish with performance comparable to AWI System TR-6 catalyzed polyurethane.
1. Staining: As indicated on drawings or if not indicated as selected by Architect from manufacturer's full range.
- F. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

## 2.2 LIGHTS AND LOUVERS:

- A. Provide openings with stops for lights and louvers.
- B. Provide the manufacturer's standard wood louvers where indicated.

## 2.3 PRE-FITTING AND PRE-MACHINING:

- A. Pre-fit doors at the factory in accordance with tolerance requirements of the WDMA standards with allowances for undercuts (if any). Provide standard bevel or radius to edge of door as required for the installation.
- B. Machine doors for butts, locksets, concealed closers, concealed holders, concealed exit hardware and flush bolts. Machine in accordance with templates of approved hardware manufacturer.

## PART 3 - EXECUTION

### 3.1 INSPECTION:

- A. Examine door frames and verify that frames are correct type and have been installed as required for proper hanging of corresponding doors. Correct any conditions that will be detrimental to proper and timely installation of wood doors. Do not proceed with installation until unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION:

- A. Condition doors to average prevailing humidity in installation area prior to hanging.
- B. Hardware: See Section 08 71 00, "Door Hardware".
- C. Install wood doors in accordance with manufacturer's instructions and as shown.
- D. Pre-fit doors: Fit to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.
- E. Clearance:
  - 1. Non-rated doors: Provide clearances of 1/8" at jambs and heads; 1/8" at meeting stiles for pairs of doors; and 1/2" from bottom of door to top of finish floor material or covering. At thresholds, provide 1/4" clearance from bottom of door to top of threshold.
  - 2. Fire-rated doors: Provide clearances complying with NFPA.

## 3.3 ADJUST AND CLEAN:

- A. Re-hang or replace doors which do not swing or operate freely.
- B. Refinish or replace doors damaged during installation.

END OF SECTION 08 14 16



## SECTION 08 31 13 - ACCESS DOORS AND FRAMES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes access doors and frames for walls, ceilings and floors.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of access door and frame indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each door face material in specified finish.
- D. Schedule: Types, locations, sizes, latching or locking provisions, and other data pertinent to installation.

#### 1.3 QUALITY ASSURANCE

- A. Fire-Rated Access Doors and Frames: Units complying with NFPA 80 that are identical to assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - 1. NFPA 252 or UL 10B for vertical access doors and frames.
  - 2. ASTM E 119 or UL 263 for horizontal access doors and frames.

#### 1.4 COORDINATION

- A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing, mechanical, or other concealed work.

### PART 2 - PRODUCTS

#### 2.1 STEEL MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36.
  - 1. ASTM A 123, for galvanizing steel and iron products.
  - 2. ASTM A 153, for galvanizing steel and iron hardware.

- B. Steel Sheet: electrolytic zinc-coated, ASTM A 591 with cold-rolled steel sheet substrate complying with ASTM A 1008, Commercial Steel (CS), exposed.
- C. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Factory-Primed Finish: Manufacturer's standard shop primer.
- D. Drywall Beads: 0.0299-inch zinc-coated steel sheet to receive joint compound.
- E. Plaster Beads: 0.0299-inch zinc-coated steel sheet with flange of expanded metal lath.
- F. Manufacturer's standard finish.

## 2.2 ALUMINUM MATERIALS

- A. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6, mill finish.
- B. Aluminum-Alloy Rolled Tread Plate: ASTM B 632, Alloy 6061-T6, mill finish.
- C. Aluminum Sheet: ASTM B 209.
  - 1. Mill finish.

## 2.3 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Acudor Products, Inc.
  - 2. Babcock-Davis; A Cierra Products Co.
  - 3. Bar-Co, Inc. Div.; Alfab, Inc.
  - 4. Cendrex Inc.
  - 5. Dur-Red Products.
  - 6. Elmdor/Stoneman; Div. of Acorn Engineering Co.
  - 7. Jensen Industries.
  - 8. J. L. Industries, Inc.
  - 9. Karp Associates, Inc.
  - 10. Larsen's Manufacturing Company.
  - 11. MIFAB, Inc.
  - 12. Milcor Inc.
  - 13. Nystrom, Inc.
  - 14. Williams Bros. Corporation of America (The).
- B. Flush Access Doors and Trimless Frames: Fabricated from metallic-coated steel sheet.
  - 1. Locations: Wall and ceiling surfaces.
  - 2. Door: Minimum 0.060-inch thick sheet metal.
  - 3. Frame: Minimum 0.060-inch thick sheet metal with drywall bead flange.
  - 4. Hinges: Spring-loaded, concealed-pin type.

5. Latch: Cam latch with interior release.
  6. Lock: Cylinder.
- C. Fire-Rated, Insulated, Flush Access Doors and Trimless Frames: Fabricated from steel sheet.
1. Locations: Wall and ceiling surfaces.
  2. Fire-Resistance Rating: Not less than that of adjacent construction.
  3. Temperature Rise Rating: 250 deg F at the end of 30 minutes.
  4. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of 0.036 inch.
  5. Frame: Minimum 0.060-inch thick sheet metal with drywall bead.
  6. Hinges: Concealed-pin type.
  7. Automatic Closer: Spring type.
  8. Latch: Self-latching device operated by flush key with interior release.
  9. Lock: Self-latching device with cylinder lock.

## 2.4 FLOOR ACCESS DOORS AND FRAMES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acudor Products, Inc. (aluminum only).
  2. Babcock-Davis, A Cierra Products Co.
  3. Bilco Company (The).
  4. Cendrex Inc.
  5. Dur-Red Products.
  6. Halliday Products (aluminum only).
  7. J. L. Industries, Inc.
  8. Karp Associates, Inc.
  9. Milcor Inc.
  10. Nystrom, Inc.
  11. U.S.F. Fabrication.
- B. Floor Doors, General: Equip each door with adjustable counterbalancing springs, heavy-duty hold-open arm that automatically locks door open at 90 degrees, release handle with red vinyl grip that allows for one-handed closure, and recessed lift handle.
- C. Aluminum Floor Door: Single-leaf opening. Extruded-aluminum angle frame with 1/4-inch thick, diamond-pattern, aluminum tread plate door; nonwatertight; loading capacity to support 300-lbf/sq. ft. pedestrian live load.
- D. Steel Angle-Frame Floor Door: Single-leaf opening. Prime-painted structural-steel frame with thick, diamond-pattern, prime-painted structural-steel tread plate door; nonwatertight; loading capacity to support 300-lbf/sq. ft. pedestrian live load.
1. Fire-Resistance Rating: Not less than that of adjacent construction.
  2. Finish painted in yellow with wording "FIRE DOOR - DO NOT STORE MATERIALS ON SURFACE."
- E. Hardware: Provide the following:

1. Hinges: Heavy-duty stainless-steel butt hinges with stainless-steel pins.
2. Latch: Stainless-steel slam latch.
3. Lock: Keyed deadlock bolt
4. Hardware Material: Stainless steel, including latch and lifting mechanism assemblies, hold-open arms, and all brackets, hinges, pins, and fasteners.

## 2.5 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view, provide materials with smooth, flat surfaces without blemishes.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.
- D. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling.
- E. Latching Mechanisms: Furnish number required to hold doors in flush, smooth plane when closed.
  1. For cylinder lock, furnish two keys per lock and key all locks alike.
  2. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
- F. Extruded Aluminum: After fabrication, apply manufacturer's standard protective coating on aluminum that will come in contact with concrete.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.
- C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust doors and hardware after installation for proper operation.
- B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.



END OF SECTION 08 31 13



## SECTION 08 62 23- TUBULAR DAYLIGHTING DEVICE

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Tubular daylighting device, consisting of roof dome, reflective tube, and diffuser assembly; configuration as indicated on the drawings.
- B. Accessories.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Completed tubular daylighting device assemblies shall be capable of meeting the following performance requirements:
  - 1. Air Infiltration Test: Air infiltration will not exceed 0.30 cfm/sf aperture with a pressure delta of 1.57 psf across the tube when tested in accordance with ASTM E 283.
  - 2. Water Resistance Test: No uncontrolled water leakage at 10.5 psf pressure differential with water rate of 5 gallons/hour/sf when tested in accordance with ASTM E 547.
  - 3. Uniform Load Test:
    - a. No breakage, permanent damage to fasteners, hardware parts, or damage to make daylighting system inoperable or cause excessive permanent deflection of any section when tested at a Positive Load of 150 psf (7.18 kPa) or Negative Load of 70 psf (3.35 kPa).
    - b. All units shall be tested with a safety factor of (3) for positive pressure and (2) for negative pressure, acting normal to plane of roof in accordance with ASTM E 330.

#### 1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.

- C. Shop Drawings. Submit shop drawings showing layout, profiles and product components, including anchorage, flashings and accessories.
- D. Verification Samples: As requested by Architect.
- E. Test Reports: Independent testing agency or evaluation service reports verifying compliance with specified performance requirements.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engaged in manufacture of tubular daylighting devices for minimum 15 years.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

#### 1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

#### 1.7 WARRANTY

- A. Daylighting Device: Manufacturer's standard warranty for 10 years.
- B. Electrical Parts: Manufacturer's standard warranty for 5 years, unless otherwise indicated.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Solatube International, Inc.
  - 2. VELUX America, Inc

3. Sun-Dome by Daylighting Technologies, Inc
  4. Natural Light Energy Systems
- B. Requests for substitutions prior to bid will be considered in accordance with provisions of Section 01 25 00.

## 2.2 TUBULAR DAYLIGHTING DEVICES

- A. Tubular Daylighting Devices General : Transparent roof-mounted skylight dome and self-flashing curb, reflective tube, and ceiling level diffuser assembly, transferring sunlight to interior spaces; complying with ICC AC-16.
- B. Basis of Design: SolaMaster Series- Solatube Model 750 DS-O Open Ceiling and DS-C Closed Ceiling, 21 inch (530 mm) Daylighting System:
1. Roof Dome Assembly: Transparent, UV and impact resistant dome with flashing base supporting dome and top of tube.
    - a. Glazing: Type DA, 0.143 inch (3.7 mm) minimum thickness injection molded acrylic classified as CC2 material; UV inhibiting (100 percent UV C, 100 percent UV B and 98.5 percent UV A), impact modified acrylic blend.
  2. LightTracker Reflector, made of aluminum sheet, thickness 0.015 inch (0.4 mm) with Spectralight Infinity. Positioned in the dome to capture low angle sunlight.
  3. Roof Flashing Base:
    - a. One Piece: One piece, seamless, leak-proof flashing functioning as base support for dome and top of tube. Sheet steel, corrosion resistant conforming to ASTM A 653/A 653M or ASTM A 463/A 463M, or ASTM A 792/A792 M, 0.028 inch (0.7 mm) plus or minus .006 inch (.015 mm) thick.
      - 1) Base Style: Type F11, Self mounted, 11 inches (279 mm) high.
  4. Flashing Insulator: Type FI, Thermal isolation material for use under flashing.
  5. Curb Insulator: Type CI, Thermal isolation material for use at curb base.
  6. Tube Ring: Attached to top of base section; 0.090 inch (2.3 mm) nominal thickness injection molded high impact PVC; to prevent thermal bridging between base flashing and tubing and channel condensed moisture out of tubing.
  7. Tube Ring Seal: Attached to the base of the dome ring; butyl glazing rope, 0.24 inch (6 mm) diameter; to minimize air infiltration.

8. Dome Seal: Adhesive backed weatherstrip, 0.63 inch (16 mm) tall by 0.28 inch (7 mm).
9. Reflective Tubes: Aluminum sheet, thickness 0.018 inch (0.5 mm).
  - a. General:
    - 1) Interior Finish: Spectralight Infinity high reflectance specular finish on exposed reflective surface. Specular reflectance for visible spectrum (400 nm to 760 nm) greater than 99 percent. Total solar spectrum reflectance (400 nm to 2500 nm) less than 80.2 percent.
    - 2) Color:  $a^*$  and  $b^*$  (defined by CIE  $L^*a^*b^*$  color model) shall not exceed plus 2 or be less than minus 2 as determined in accordance to ASTM E 308.
  - b. Bottom Tube Angle Adapter, Type BA:
    - 1) Reflective 45 degree adjustable Bottom Tube Angle Adapter, 16 inches (406 mm) long
  - c. Top Tube Angle Adapter and Bottom Tube Angle Adapter Kit, Type AK:
    - 1) Reflective 45 degree adjustable top and bottom angle adapters (one each), 16 inches (406 mm) long
  - d. Extension Tube:
    - 1) Reflective extension tube, Type EXX, Notched for Open Ceiling diffuser attachment, 24 inches (610 mm) or 48 inches (1220 mm) long.
10. Diffuser Assemblies for Tubes Not Penetrating Ceilings (Open Ceiling): Solatube Model 750 DS-O and Tube Penetrating Ceilings (Closed Ceiling): Solatube Model 750 DS-C. 21 inch (530 mm) diameter diffuser attached directly to bottom of tube.
  - a. Lens: Type L2, Prismatic lens designed to maximize light output and diffusion. Visible Light Transmission shall be greater than 90 percent at 0.100 inch (2.5 mm) thick. Classified as CC2.
  - b. Diffuser Seal: Open cell foam, acrylic adhesive backed, 0.75 inch (19 mm) wide by 0.125 inch (3.2 mm) thick to minimize condensation and bug, dirt and air infiltration per ASTM E 283.
  - c. Diffuser Trim Ring: Injection molded acrylic. Nominal wall thickness 0.172 inches (4.4 mm).
11. Accessories:

- a. Open ceiling trim ring: Type R, ABS Plastic, White; nominal thickness of 0.04 inches (1 mm).
- b. Local Dimmer Control utilizing a butterfly baffle design of Spectralight Infinity reflective material to minimize shadowing when in use: Provided with dimmer switch and cable.
  - 1) Daylight Dimmer: Type D Electro-mechanically actuated daylight valve; for universal input voltages ranging between 90 and 277 V at 50 or 60 Hz; maximum current draw of 50 ma per unit; controlled by low voltage, series Type T02: circuited, 4 conductor, size 22 cable; providing daylight output between 2 and 100 percent. Provided with dimmer switch and cable.
  - 2) Switch: Type SW, Manufacturer-specific low voltage DC DP/DT switch (white) required to operate Daylight Dimmer. Note: only one switch is required per set of synchronously controlled dimmers.
  - 3) Cable: Type CA, Two conductor low voltage cable (500 foot) for multiple unit DC connection.
- c. Thermal Insulation Panel: Type TIP, high-performance dual-glazed, thermally-broken tube insulation system consisting of two acrylic panels, spaced 1.0 inch (25.4mm) apart, classified CC2 Class C material, 0.110 inch (2.8 mm) thick, housed in a polyethylene terephthalate glycol-modified (PETG) or acrylonitrile butadiene styrene (ABS) band classified as CC2 material 0.060 inch (1.5 mm) thick by 1.75 inch (44.5 mm) high with Spectralight Infinity high reflectance specular finish interior surface, and assembled with stainless steel disk spacers 0.0197 inch (0.5 mm) thick and aluminum rivets 0.13 inch (3.2 mm) fastened periodically around the perimeter.

## 2.3 ACCESSORIES

- A. Fasteners: Same material as metals being fastened, non-magnetic steel, non-corrosive metal of type recommended by manufacturer, or injection molded nylon.
- B. Suspension Wire: Steel, annealed, galvanized finish, size and type for application and ceiling system requirement.
- C. Sealant: Polyurethane or copolymer based elastomeric sealant as provided or recommended by manufacturer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions.
- B. After installation of first unit, field test to determine adequacy of installation. Conduct water test in presence of Owner, Architect, or Contractor, or their designated representative. Correct if needed before proceeding with installation of subsequent units.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 08 62 23



## SECTION 08 71 00 - DOOR HARDWARE

### GENERAL

#### 1.1 DESCRIPTION OF WORK

- A. Work Included This Section:
  - 1. Work of this Section shall include all labor, materials, equipment, transportation, tools and storage required for complete installation of all finish hardware, shown and scheduled on Drawings and specified herein.
  - 2. It is the intent of this Specification to provide complete finishing hardware requirements for the entire building project excepting hardware, which is specifically mentioned as furnished by others.
  
- B. Work Not Included:
  - 1. Hardware for:
    - a) Toilet Partitions and Doors.
    - b) Millwork and Cabinets.
  
- C. Related Work Specified Elsewhere:
  - 1. Hollow Metal Doors and Frames (08 11 13)
  - 2. Flush Wood Doors (08 14 16)
  - 3. Aluminum-Framed Entrances and Storefronts (08 41 13)

#### 1.2 QUALITY ASSURANCE

- A. The Hardware Supplier shall be one having in his regular employ, an AHC (Architectural Hardware Consultant) who is, through experience, capable of supervising the furnishing and installation of the hardware requirements contained herein.
  - 1. The consultant shall be available for technical assistance on the site that may be required in connection with hardware installation.
  
- B. The Hardware Supplier, if required, shall provide information to the Architect, documentation that he has the experience and knowledge to furnish the proper hardware for this work and that he has a record of completing similar projects on time and to the satisfaction of the Owner and Architect.
  
- C. Pre-submittal Meeting:
  - 1. Prior to the hardware submittal, the Contractor shall have a coordination meeting with all Suppliers and Subcontractors involved with supplying or installing components of the hardware system for each and every door with electrical components.
  - 2. Include at a minimum the following:
    - a) Contractor.
    - b) Hardware supplier.
    - c) Controls installer.
    - d) Fire Alarm installer.

- e) Electrician.
  - f) Owner representative.
  - g) Architect.
- D. Immediately after the approval of the hardware submittal but prior to the installation of any electrified hardware the Contractor shall have a coordination meeting with all Suppliers and Installers involved with supplying or installing any electrified component of the hardware system for each and every door.
- 1. Minutes to be submitted as part of the submittal requirements.
- E. Service:
- 1. The project shall be visited by a representative of the hardware supplier during the course of construction. One time shall be after all hardware is applied.
  - 2. The supplier must write a letter to the Architect after this visit and state his findings.
- F. Codes and Regulations:
- 1. All hardware listed or furnished shall meet requirements of Federal, State and Local Codes (including ADA) have jurisdiction over this installation.
- G. Any item furnished or installed that does not meet code requirements as specified, shall be removed and proper items substituted at no additional cost or expense to the Owner. All hardware furnished in connection with doors bearing Labels or where necessary to meet special requirements, such as handicapped codes, will be in strict accordance with conditions established by the authority having jurisdiction and subject to approval of that authority as specified herein.

### 1.3 SUBMITTALS

- A. Hardware Schedule:
- 1. A detailed hardware schedule (wet sealed by an AHC) shall be prepared showing doors and indicating the type of swing, key side, room to and from, the degrees of swing, the type of door buck, any special hardware locations, and a list of the hardware and manufacturers of each item.
  - 2. This schedule shall also show the recommended keying arrangement, which shall be submitted through the General Contractor to the owner for approval.
  - 3. Schedule shall include a consecutive listing of doors (numbered in sequence as shown on the Architectural Drawings) showing hardware for each door.
  - 4. Hardware containing electronics, including automatic hardware, shall have complete, point to point wiring diagrams of each opening indicating wire sizes for special hardware for each hardware set required and final responsibility of all connections.
  - 5. The hardware supplier shall submit for approval, six (6) copies of the complete hardware. No hardware shall be delivered until the Contractor and Architect have approved the hardware schedule.
  - 6. The hardware supplier shall submit along with the Finish Hardware Schedule, catalogue cuts of all items submitted as well as catalogue cuts of the specified items.
    - a) If ANSI products or generic items are specified, the scheduled items will be cross-referenced.
    - b) Provide samples when requested.

7. Provide detailed riser diagrams of all electrically actuated hardware including proper interfacing with any automatic door operators.
- B. Samples:
1. Provide samples at no cost of hardware when requested.
- C. Provide two complete sets of maintenance manuals, spare parts and tools.
- D. Templates:
1. Immediately after the award of the hardware contract, the hardware supplier shall request approved shop drawings from those trades with which hardware must be coordinated.
  2. After checking shop drawings, he shall promptly supply necessary template information to all concerned as may be required to facilitate the progress of the job.
  3. All procedures for template information shall be in accordance with the DHI Handbook, "Recommended Procedure for Processing Hardware Schedules and Templates".
- E. Submittal Review Conference: No less than two weeks after delivery of the door, door frame and hardware submittals, the General Contractor, along with the hardware supplier, shall organize a submittal coordination conference that may also be attended by representatives of the architect and the Owner. The purpose of this meeting is; to review the details of the hardware and keying with all concerned parties prior to fabrication, inform the user of the specific equipment that will be furnished, and make necessary changes.

#### 1.4 PRODUCT HANDLING

- A. Template Requirements:
1. Supply all templates and template information to other manufacturers whose work is affected by the work of this section.
  2. Hardware for use with hollow metal doors and frames and aluminum doors and frames shall be furnished to template.
  3. Attachment shall be with machine screws or through bolts when required.
  4. Hardware Supplier shall furnish templates to the wood door manufacturer for pre-fitting and pre-machining of the doors as specified.
- B. Delivery and Packaging:
1. Deliver items of hardware in one shipment, or as required by General Contractor, direct from supplier warehouse to the jobsite along with packing list showing where each piece of hardware can be found.
  2. Package each item of hardware separately in individual containers complete with screws, instructions, and installation templates.
  3. Identify each container with number of door to which hardware item is to be applied.
    - a) Items such as hinges (except special types), door stops, weather stripping, silencers, and standard size kick plates will not require "door number" identification.

#### 1.5 APPLICABLE PUBLICATIONS

- A. The following current publications form a part of this specification to the extent indicated by any references thereto.
1. American National Standards Institute (ANSI) Standards (Relating to Finish Hardware)
  2. Builders' Hardware Manufacturers Association (BHMA) Standards

3. Door & Hardware Institute - "Hardware for Buildings" Handbooks
  4. National Fire Protection Association (NFPA) Publications
    - a) 70 – latest edition National Electric Code
    - b) 80 - latest edition Standard for Fire Doors and Windows
    - c) 101- latest edition Code for Safety to Life from Fire in Buildings and Structures
- B. Fire Rated Doors and Frames:
1. Where emergency exit devices are required on fire rated doors, provide UL or WHI label on exit devices indicating "Fire Exit Hardware".
  2. Install closing (self-closing or automatic closing) device on every fire door bearing fire labels.
- C. Underwriters' Laboratories, Inc. (UL), Factory Mutual, Warnock Hersey or other nationally recognized testing laboratories.
- D. North Carolina Building Code with latest edition.

## 1.6 STORAGE

- A. Contractor shall furnish a secure locked dry storage area for delivery by Hardware Supplier of finish hardware and storage of same. Contractor shall be responsible for shortages due to theft, pilferage, etc.
- B. Provide storage space with necessary open shelves, bins, and counters for assembly and grouping hardware before distribution and installation. Specialty items such as door closers, exit devices, overhead holders, locksets, etc. shall not be opened until ready to use.
- C. See paragraph on keying. Store keys in indexing key envelopes as furnished by Key Control Manufacturer. Mark envelopes carefully to prevent misplacement. Turn envelopes over to Key Control Manager as required.

## 1.7 MAINTENANCE

- A. Maintenance Control:
1. Furnish maintenance repair kits and manuals as required for all hardware listed in the Contract Documents. These materials shall be sent directly to the Owner by registered mail.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Materials specified and shown in the hardware schedule are the type, design and quality required.
- B. Reinforcement:
1. Reinforcing of proper gauge, size and attachment as recommended by the Manufacturer for hardware shall be furnished and installed by the Door and Frame Manufacturer.
- C. Modifications:

1. Modifications shall not be made to hardware except with the approval of the supplier and/or manufacturer.
- D. Manufacturer:
1. Following items within each classification shall be furnished totally by one manufacturer unless schedule indicates otherwise. Acceptable products as noted.
    - a) Hinges - Hager, McKinney, PBB.
    - b) Exit Devices – Corbin Russwin, Yale, Detex.
    - c) Locksets – Corbin Russwin, Yale, Sargent.
    - d) Closers – Corbin Russwin, Norton, Yale.
- E. Lock and Latch Set:
1. All locksets (and latchsets) must conform to ANSI A156.13, Grade 1, as specified under the hardware sets and be UL listed. All lock and latch sets must be through-bolted. All locksets and latchsets must have a three-year warranty.
    - a) Subject to established performance and warranty requirements, acceptable Lock/Latch Manufacturers are:
      - 1) Corbin Russwin ML-2000 – ASA Design
      - 2) Yale 8800FL – MOR Design
      - 3) Sargent.8200 – LNB Design
      - 4) Schlage L Series – F Jazz Design
- F. Keying:
- 1 Keying and cylinder type to be per owner’s instruction. Temporary ICC cylinders shall be supplied during the construction period on all exit device trims. Permanent ICC cylinders installed by the Hardware supplier at the time of CMK removal.
  - 2 After installation of hardware and before acceptance of the building, hardware supplier shall check each locked door against key symbol to make certain that correct locks and cylinders are on proper doors.
- G. Manufacturer:
1. Following items within each classification shall be furnished totally by one manufacturer unless schedule indicates otherwise:
    - a) Hinges
    - b) Exit Devices
    - c) Locksets
    - d) Closers
    - f) Protection Plates
- H. Fasteners:
1. Use concealed fasteners whenever possible.
  2. Hardware to be installed on metal work shall be furnished with Phillips head machine screws.
  3. For exposed fasteners on interior in bronze or brass, use matching color and material for fasteners. For all other exposed fasteners on interior, use stainless steel except where noted specifically otherwise.
  4. Furnish stainless steel screws for all exterior work.
- I. Finishes:
1. Finishes shall be as follows unless the schedule dictates otherwise:
    - a) All exterior door butts shall be 630

- |   |                         |
|---|-------------------------|
| b) All interior door butts at wood doors shall be   | 652 or 630 as specified |
| c) All interior door butts at metal doors shall be  | 630                     |
| d) Locksets and exit bolts trim shall be  | 630                     |
| e) Door closers shall have sprayed lacquer finish to match adjacent hardware or shall be plated as scheduled. |                         |
| f) Door pulls shall be  | 630                     |
| g) Push plates shall be   | 630                     |
| h) Kick plates and mop plates shall be  | 630                     |
| i) Armor plates shall be  | 630                     |
| j) Thresholds and weatherstripping shall be   | 628.                    |
| k) Stops, holders, miscellaneous items shall be   | 626 or 630              |
| l) Hardware for aluminum doors shall be as specified in that section.   |                         |

## 2.2 HARDWARE ITEMS

### A. Butt Hinges:

1. In general, provide 1-1/2 pair per door of average height. For doors under 5', one pair will suffice. Doors over 90" in height shall have (2) two pair. Dutch doors shall have a minimum of two pair.
2. All hinges shall be 5 knuckle and have flat button tips unless specified otherwise.
3. Hinge size shall be 4-1/2 x 4-1/2, .134 gauge for all doors up to and including 36" wide. Doors over 37" wide and less than 42" shall have 5" x 4-1/2" .146 gauge scheduled. Doors 42" and over shall have 5" x 4-1/2" 4 ball bearing hinge .190 gauge.
4. Hinges shall be full mortise type. Hinges for labeled doors shall meet requirements for that rating.
5. Exterior outswinging doors shall have 4 bearing .190 gauge hinges sized as paragraph 3 above in brass, bronze, or stainless steel. Stainless shall be scheduled unless finish dictates otherwise.
6. Interior doors shall have steel hinges scheduled.
7. Provide ball bearing hinges on all doors with closers, all metal doors, and on doors over 37" wide and all high frequency openings. Other doors shall be plain bearing.
8. Provide hinges with non-removable pins and/or security studs for all outswing exterior doors and high security interior controlled doors.
9. Half-surface through-bolted hinges shall be provided at "B" label 1 and 1-1/2 hour rated wood doors unless manufacturer guarantees full mortise installation because of special reinforcing provisions.
14. Manufacturer shall be Bommer, McKinney, or Stanley.

### H. Exit Devices:

1. All devices shall be UL approved for all types and functions indicated in the Hardware Set.
2. Where exit devices are used in a door where the device spans across a view light in the door, the device shall be equipped with a glazing frame kit.
3. Push pad exit devices shall be patterned punched to designate code requirements where required.
4. Approved Manufacturers are as follows:
  - a) Corbin Russwin ED5000/ED4000
  - b) Yale 7100/7200
  - c) Von Duprin 98 Series

### I. Door Closers:

1. All door closers shall be stalled on the inside of the building and inside of the rooms. The following series products are approved: Norton 7500 Series, Corbin Russwin DC6000, Yale 4400 Series, LCN 4040 Series.
  2. All closer arms shall be of type required to provide maximum permissible swing of door.
    - a) Size scheduled shall be as required by manufacturer's size chart.
    - b) Closers shall be mounted parallel arm wherever closer may strike a wall or arm project into a corridor.
    - c) Where wall stops are not practical, provide stop arm.
  3. Provide closers that are both non-handed and multi-sized.
  4. The Contractor shall provide initial settings for operating force and opening range to meet the standards of ADA guidelines.
  5. Mounting door closers inside rooms.
    - a) Size requirements shall conform to the manufacturer's published recommendation and shall be shown on hardware schedule.
  6. Closers shall have a minimum 10-year warranty and be UL listed for functions shown in Hardware Sets.
- J. Door Stops:
1. Door stops shall be installed wherever an open door or any item of hardware thereon strikes a wall or other part of building construction.
    - a) McKinney wall stop WS01 shall be used.
  2. All wall stops shall be installed with proper blocking within the wall.
  3. Products of equal design, finish, and functions as manufactured by Baldwin or Rockwood will be considered equal.
  4. Where wall conditions exclude the use of a wall stop use an overhead stop. Where neither of these can apply substitute a floor stop Trimco 1211 or approved equal
- K. Door Silencers:
1. Provide 1/2" diameter rubber pneumatic type silencers, (minimum 3 per single door and 2 per opening for pair) McKinney S1M (Grey) or equal. Products of equal design, finish, and functions as manufactured by Baldwin, Ives, Rockwood, Quality, or Trimco will be considered equal.
- L. Door Pulls and Push Plates:
1. Pulls shall be as manufactured by Rockwood or approved equal.
  2. Any special pulls shall be scheduled.
  3. Push plates shall be .050 thick.
    - a) If stiles of doors will not permit, a smaller size shall be used to suit conditions.
  4. Plates shall be beveled 4 sides.
  5. Products of equal design, finish, and functions as manufactured by Baldwin, Trimco, McKinney, or Hager will be acceptable.
- M. Protection Plates:
1. Protection plates shall be .050 gauge metal.
  2. Plates shall be beveled 4 sides and attached by countersunk sheet metal oval screws and in the sizes indicated below:
    - a) Kick plates shall be 8" high
    - b) Mop plates shall be 4" high

- c) Armor plates shall be 42" high.
  - d) Width shall be 2" LDW for single doors on push side. 1" LDW on pull side and at pairs of doors.
  - e) Products of equal metal design, finish, and functions as manufactured by Baldwin, Rockwood, or McKinney will be acceptable.
  - d) Mounting of metal shall be with screws.
- N. Dust Boxes:
- 1. Dust boxes shall be installed with all jambs.
  - 2. All flush bolts unless locked into a threshold shall be provided with a dust proof strike equal to H. B. Ives 489.
- O. Rain Drip:
- 1. When exterior doors are not protected by building roof and conditions dictate, provide rain drip equal to Zero #142 4" wider than door size.
  - 2. Products of equal design, finish, and function manufactured by Reese, McKinney and Pemko will be considered equal.
- P. Thresholds:
- 1. All exterior doors shall be aluminum as manufactured by McKinney.
  - 2. Products of equal design, finish, and function manufactured by Reese, Trimco, Zero International and Pemko will be considered equal.
  - 3. Provide carpet divider fire stop thresholds at all rated doors where carpet extends through the door opening.
  - 4. Divider strip shall be Pemko (verify with Architect) or equal.
- Q. Weatherstrip:
- 1. All exterior doors shall be equipped with Pemko 303AS seal or equal. Products of equal design, finish, and function manufactured by Reese, McKinney and Zero will be considered equal.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. Consult project drawings and details and otherwise become familiar with work so that all items furnished will conform to openings to which applied. Proper labeled Hardware will be supplied and all handicapped codes and other codes will be properly met.
- B. Coordinate hardware with other allied trades such as carpentry, millwork, metal frames, etc.

### 3.2 INSTALLATION

- A. All hardware shall be installed in accordance with manufacturer's instructions.
  - 1. Except as indicated or specified otherwise, fasteners furnished with the hardware shall be used to fasten hardware in place.
  - 2. Fasten hardware to wood surfaces with full-threaded wood screws or sheet metal screws with proper finished head as supplied by the manufacturer of the hardware.
  - 3. Use:



- a) Machine screws set in expansion shields for fastening hardware to solid concrete and masonry surfaces.
  - b) Toggle bolts where required for fastening to hollow core construction.
  - c) Sex nuts and bolts for mounting closers and pulls, and labeled hardware where necessary for satisfactory installation.
- B. All painting of doors shall be done prior to installation of hardware.
- C. After installation, protect hardware from paint, stains, blemishes and other damage until acceptance of the work.
- D. Mount hardware units at heights recommended in "Recommended Locations for Builder's Hardware" by DHI except as otherwise specifically indicated or required to comply with local code or government regulations. The Architect may direct otherwise.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Cut and fit threshold and floor covers to profile of door frames, with mitered corners and hair line joints. Join units with concealed welds or concealed mechanical joints. Cut smooth openings for spindles, bolts and similar items if any.
- F. Screw thresholds to substrate with No. 10 or larger screws and anchors of the proper type for permanent anchorage and of bronze or stainless steel which will not corrode in contact with the threshold metal. On heavy-duty cast metal thresholds, provide not less than 3/8" diameter screw anchors.
- G. At exterior doors, and elsewhere as indicated, set thresholds in a bed of either butyl rubber sealant or polyisobutylene mastic sealant to completely fill concealed voids and exclude moisture from every source. Do not plug drainage holes or block weeps. Remove excess sealant.

### 3.3 ADJUSTMENT AND CLEANING:

- A. It shall be the Contractor's responsibility to adjust and check each operating item of hardware and each door, to insure proper operation of function of every unit.
- 1. Lubricate moving parts with type lubrication recommended by manufacturer.
    - a) Graphite type if no other recommended.
    - b) Replace units which cannot be adjusted and lubricate to operate freely and smoothly as intended for the application made.
- B. Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make a final check and adjustment of all hardware items in such space or area.
- C. Clean and relubricate operating items as necessary to restore proper function and finish of hardware and doors.

- D. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
  - 1. Instruct Owner's personnel in proper adjustment and maintenance of hardware finishes, during the final adjustment of hardware.

### 3.4 CONTINUED MAINTENANCE SERVICE

- A. Approximately six months after the acceptance of hardware in each area, the Installer, accompanied by the Contractor and the Hardware Supplier shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware.
- B. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
- C. Clean and lubricate operational items wherever required.
- D. Replace hardware items which have deteriorated or failed due to faulty design, materials or installation of hardware units.
- E. Provide Architect with a written report upon completion of the above.

### 3.5 COMPLETION

- A. Inspection of Hardware and Installation:
  - 1. The hardware supplier shall visit the Project when the hardware is delivered and check it before it is installed.
  - 2. He shall visit the Project again after all the hardware has been installed and shall notify the Architect in writing, that all hardware is functioning properly and has been installed or adjusted correctly.
  - 3. The contractor shall turn over to the Owner, in book form, after completion of the Work, at least one copy of every installation instruction sheet and parts list, all tools, wrenches and templates, that come packaged with the hardware, for the Owner's use in servicing the hardware.

### 3.6 HARDWARE SCHEDULE

- A. See attached schedule

END OF SECTION 08 71 00

SECTION 080671 – DOOR HARDWARE SCHEDULE

PART 1 - PRODUCTS

1.1 SCHEDULED DOOR HARDWARE

A. Refer to “PART 3 – EXECUTION” for required specification sections.

PART 2 -

1. MK - McKinney
2. RU - Corbin Russwin
3. HS - HES
4. RO - Rockwood
5. RF - Rixson
6. NO - Norton
7. PE - Pemko
8. OT - Other
9. SU - Securitron

**Hardware Sets**

**Set: 1.0**

Hinge	TA2714 x QC	US26D	MK
Hinge	TA2714	US26D	MK
1 Exit Device	ED5200 L9903ET M92	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals	S88BL		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 ElectroLynx Harness	QC-C000P x LAR		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU

1 Hardware SEE NOTE BELOW OT

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL UNLOCKS OUTSIDE LEVER AND ALLOWS INGRESS. EGRESS BY EXIT DEVICE PUSH BAR AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 2.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	1006-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY INSIDE LEVER AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 3.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	1006-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Overhead Stop	10 SERIES	630	RF
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY INSIDE LEVER AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 4.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Electric Strike	1006-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
1 Surface Closer	PR7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 ElectroLynx Harness	QC-C1500P (@ JAMB)		MK
1 Wiring Diagram	WD-SYSPK		
1 Card Reader	FURNISHED IN OTHER SECTION		OT
1 Power Supply	AQD AS REQUIRED		SU

OPERATION: DOOR NORMALLY CLOSED AND LOCKED. PRESENTATION OF AUTHORIZED CREDENTIAL RELEASES ELECTRIC STRIKE AND ALLOWS INGRESS. EGRESS BY INSIDE LEVER AT ALL TIMES.

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 5.0**

Hinge	TA2714	US26D	MK
1 Passage Latch	ML2010 LWA	630	RU
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 6.0**

Hinge	TA2714	US26D	MK
1 Classroom Lock	ML2055 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 7.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 8.0**

Hinge	TA2714	US26D	MK
1 Storeroom Lock	ML2057 LWA LC	630	RU
1 Cylinder	AS REQUIRED x MATCH & EXTEND EXISTING KEY SYSTEM	630	
1 Surface Closer	7500	689	NO
1 Kick Plate	K1050 8" high CSK	US32D	RO
1 Door Stop	409/441CU	US26D	RO
1 Set Door Seals/Silencers	S88D/608 AS REQUIRED		PE
1 Hardware	SEE NOTE BELOW		OT

NOTE: PROVIDE FILLER PLATES AS REQUIRED WHERE EXISTING DOORS & FRAMES ARE TO BE REUSED.

**Set: 9.0**

2 Door Pull	RM3301 x DOOR HEIGHT Mtg-Type 5HD MP	US32D	RO
1 Hardware	SEE NOTE BELOW		OT

NOTE: DEMOUNTABLE DOOR - BALANCE OF HARDWARE TO BE SUPPLIED BY DOOR MANUFACTURER.

**Set: 10.0**

1 Hardware

SEE NOTE BELOW

OT

NOTE: EXISTING DOOR - ALL EXISTING HARDWARE TO REMAIN.

END OF SECTION 080671



## SECTION 08 81 00 – GLASS GLAZING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes glazing for the following products and applications:
1. Windows. – See Window Specifications for Pre-manufactured wood, clad or aluminum window glazing types.
  2. Doors.
  3. Aluminum-framed entrances and storefronts.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
    - a. Specified Design Wind Loads: As indicated on drawings or if not indicated as required by local code.
    - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
      - 1) Load Duration: 60 seconds or less.
    - c. Minimum Glass Thickness for Exterior Lites: Not less than 6 mm (1/4”).
    - d. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for each tint color indicated throughout Project.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from a maximum change (range) of 120 deg F, 180 deg F in ambient and surface temperatures, respectively, acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
  2. For laminated-glass lites, properties are based on products of construction indicated.
  3. For insulating-glass units, properties are based on units with lites 6 mm (1/4”) thick and a nominal 1/2-inch- wide interspace.
  4. Center-of-Glass U-Values: NFRC 100 methodology using LBNL Window 6.3 computer program, expressed as Btu/ sq. ft. x h x deg F.

5. Center-of-Glass Solar Heat Gain Coefficient: NFRC 200 methodology using LBNL Window 6.3 computer program.
6. Solar Optical Properties: NFRC 300.

### 1.3 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: 12-inch- square, for each type of glass product indicated, other than monolithic clear float glass.
- C. Glazing Schedule: List glazing types and locations.
- D. Sealant compatibility and adhesion test reports.

### 1.4 QUALITY ASSURANCE

- A. Sealant Compatibility and Adhesion Testing: Use sealant manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Fire-Rated Assemblies: Where glazing products are used in fire-rated assemblies, comply with requirements of specific assembly specified in other sections of these Specifications.
  1. Door Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
  2. Window Assemblies: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 257.
- C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
  - A. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of [the SGCC] [the SGCC or another certification agency acceptable to authorities having jurisdiction] [or] [the manufacturer]. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
  - B. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.
- D. Glazing Publications: Comply with recommendations of the following, unless more stringent requirements are indicated.
  1. GANA Publications: "Glazing Manual" and "Laminated Glass Design Guide."
  2. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines."

- E. Insulating-Glass Certification Program: Permanently marked with certification label of one of the following: Insulating Glass Certification Council, Associated Laboratories, Inc National Accreditation and Management Institute.

## 1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form, made out to Owner and signed by manufacturer, in which manufacturer agrees to furnish replacements for units that deteriorate from normal use by developing defects attributable to the manufacturing process, f.o.b. the nearest shipping point to Project site, within warranty period.
  - 1. Coated Glass:
    - a. Defects: Peeling, cracking, and other indications of degradation of metallic coating.
    - b. Warranty Period: 10 years from date of Substantial Completion.
  - 2. Insulating Glass:
    - a. Deterioration: Failure of hermetic seal resulting in obstruction of vision by dust, moisture, or film on interior surfaces of glass.
    - b. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MONOLITHIC FLOAT GLASS MATERIALS

- A. **Uncoated Clear Float Glass:** ASTM C 1036, Type I (transparent glass, flat), Quality q3 (glazing select). Where glass designated below, indicated on drawings, or required by building codes, provide Type I (transparent glass, flat), Class 1 (clear) glass lites complying with the following:
  - 1. Uncoated Clear Annealed Float Glass: Annealed or Kind HS (heat strengthened), Condition A (uncoated surfaces) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with performance requirements.
  - 2. Uncoated Clear Heat-Strengthened Float Glass: Kind HS (heat strengthened).
    - a. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
  - 3. Uncoated Clear Fully Tempered Float Glass: Kind FT (fully tempered).
- B. **Coated Clear Float Glass:** Provide coated glass complying with requirements designated below, indicated on drawings, or required by building code. Provide Kind HS (heat-strengthened) coated float glass in place of coated annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated.
  - 1. Coated Clear Annealed Float Glass: Annealed or Kind HS (heat strengthened), Condition C (other coated glass) where heat strengthening is required to resist thermal stresses induced by differential shading of individual glass lites and to comply with system performance requirements.
  - 2. Coated Clear Heat-Strengthened Float Glass: Condition C (other coated glass), Kind HS (heat strengthened).
  - 3. Coated Clear Fully Tempered Float Glass M: Condition C (other coated glass), Kind FT (fully tempered).

## 2.2 OTHER GLASS TYPES

- A. **Fire Rated Glazing:** Laminated Ceramic Glazing Material: Proprietary product in the form of two lites of clear ceramic glazing material laminated together to produce a laminated lite of 5/16-inch nominal thickness; polished on both surfaces; weighing 4 lb/sq. ft; and as follows:
1. Fire-Protection Rating: As indicated for assembly in which glazing material is installed, and permanently labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.
  2. Polished on both surfaces, transparent.
  3. Product: "FireLite Plus" manufactured by Nippon Electric Glass Co., Ltd. and distributed by Technical Glass Products or approved substitute.

## 2.3 INSULATING GLASS UNITS

- A. **General:** Insulating-Glass Units: Pre-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190 and complying with requirements designated below, indicated on Drawings, or required by building code.
1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated or required by code.
  2. Sealing System: Dual seal with manufacturers standard primary and secondary sealants.
  3. Spacer: Manufacturer's standard.
  4. Corner Construction: Manufacturer's standard.
  5. Overall Unit Thickness and Thickness of Each Lite: 25 mm (1") and 6 mm (1/4") Dimensions indicated are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
  6. Interspace Content: Air.
- B. **Low-E Tinted Insulating Glass:**
1. Provide glass complying with requirements designated below, indicated on drawings, or required by building code. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in "Performance Requirements" Article. Provide Kind FT (fully tempered) where safety glass is indicated or required by code.
  2. Interspace Content: Air
  3. Indoor Lite: Float glass, Class 1 (clear), Annealed, Kind HS (heat strengthened), Condition C (other coated glass), Kind FT (fully tempered), Condition C (other coated glass), Kind HS (heat strengthened), Condition A (uncoated surfaces), Kind FT (fully tempered) Condition A (uncoated surfaces).
  4. Outdoor Lite: Float glass, Class 2 (clear), Annealed, Kind HS (heat strengthened), Condition A (uncoated surfaces), Kind HS (heat strengthened), Condition C (other coated glass), Kind FT (fully tempered), Condition A (uncoated surfaces), Kind FT (fully tempered) Condition C (other coated glass).
    - a. Color to match existing building as approved by Architect
  5. Low-Emissivity Coating: Coating on second surface.
  6. Winter Nighttime U-Value: Maximum value of .28 unless otherwise noted
  7. Summer Daytime U-Value: Maximum value of .26-.27 unless otherwise noted
  8. Visible Light Transmission: 63-64% Minimum
  9. SHGC: .27
  10. Shading Coefficient: .30-.32
  11. Outdoor Visible Light Reflectance: 11-12%

12. Basis of Design: Guardian SunGuard SNX 62/27 UltraWhite/UltraWhite  
PPG Solarban 70 Starphire/Clear

#### 2.4 FILM (FLM)

- A. Provide translucent film on demountable wall partitions. See 1/A701 First Floor Finish plan for locations. See 2/A701 for heights of film on demountable wall partition.
- B. Acceptable Manufacturers:
1. LLumar
  2. Eykon, Window Film/Wall Wrap
  3. National Wallcovering, Window Films
- C. Basis of design: Manufacturer: 3M Architectural Markets, Fasara Glass Finishes. Style: Leise, SH2FGLS.

#### 2.5 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  2. Colors of Exposed Sealants: As selected by Architect from manufacturer's standard colors.
- B. Elastomeric Glazing Sealants: ASTM C 920, Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic), M, G, A, and, as applicable to glazing substrates indicated, O.
1. Glazing Sealant for Fire-Resistive Glazing Products: Sealant used in test assembly to obtain fire-protection rating.
  2. Low-Modulus Nonacid-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
  3. Medium-Modulus Neutral-Curing Silicone: With additional movement capability of 50 percent movement in extension and 50 percent movement in compression when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719.
- C. Glazing Sealant for Fire-Resistive Glazing Products: Identical to product used in test assembly to obtain fire-protection rating.

#### 2.6 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 804.3 tape, where indicated.
  2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

- B. Expanded Cellular Glazing Tape: Closed-cell, PVC foam tape; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
  - 1. Type 1, for glazing applications in which tape acts as the primary sealant.
  - 2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.7 GLAZING GASKETS

- A. Compression Gaskets: Molded or extruded gaskets of type and material indicated below and of profile and hardness required to maintain watertight seal:
  - 1. Neoprene or EPDM dense compression gaskets complying with ASTM C 846.
  - 2. Silicone dense compression gaskets complying with ASTM C 1115.
  - 3. Neoprene, EPDM, or Silicone soft compression gaskets complying with ASTM C 509, Type II, black.

## 2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

## 2.9 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

## PART 3 - EXECUTION

### 3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

1. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
  2. Protect glass edges from damage during handling and installation. Remove glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance from Project site and legally dispose of off Project site.
  3. Apply primers to joint surfaces where required for adhesion of sealants, as determined by sealant compatibility and adhesion testing.
  4. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
  5. Provide spacers for glass lites where the length plus width is larger than 50 inches unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances.
- B. Protection:
1. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface.
  2. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter.
- C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged, including natural causes, accidents, and vandalism, during construction period.

END OF SECTION 08 81 00





# Division 09 - Finishes



## SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  1. Interior gypsum wallboard.
  2. Tile backing panels.
  3. Non-load-bearing steel framing.

#### 1.2 SUBMITTALS

- A. Product Data: For each product indicated.

#### 1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

### PART 2 - PRODUCTS

#### 2.1 STEEL FRAMING

- A. Steel Framing, General: Comply with ASTM C 754 for conditions indicated.
  1. Steel Sheet Components: Metal complying with ASTM C 645 requirements.
    - a. Protective Coating:
      - 1) Interior Applications: ASTM A 653, G40, hot-dip galvanized zinc corrosion-resistant coating.
      - 2) Exterior Applications: ASTM A 653/A 653M, G60, hot-dip galvanized zinc corrosion-resistant coating.
- B. Suspended Ceiling and Soffit Framing:
  1. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch diameter wire.
  2. Hanger Attachments to Concrete if required:
    - a. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.
  3. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
  4. Carrying Channels: Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538 inch, a minimum 1/2-inch- wide flange, and in depth indicated.

5. Furring Channels (Furring Members):
  - a. Cold Rolled Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, 3/4 inch deep.
  - b. Steel Studs: ASTM C 645, in depth indicated.
    - 1) Minimum Base Metal Thickness: 0.0179 inch
  - c. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep, unless indicated otherwise.
    - 1) Minimum Base Metal Thickness: 0.0179 inch
  - d. Resilient Furring Channels: As noted on drawings, 1/2-inch-deep members designed to reduce sound transmission, and asymmetrical with single leg.
  
- C. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  1. Products:
    - a. Armstrong World Industries, Inc.; Furring Systems/Drywall.
    - b. Chicago Metallic Corporation; Drywall Furring System.
    - c. USG Interiors, Inc.; Drywall Suspension System.
  
- D. Partition and Soffit Framing: All thicknesses are minimums; verify if drawings call for specific gauge.
  1. Steel Studs and Runners: ASTM C 645, in depth indicated.
    - a. Minimum Base Metal Thickness: 0.0200 mil.
  2. Deflection Design Options:
    - a. Steel sheet top runner manufactured to prevent cracking of gypsum board applied to interior partitions resulting from deflection of structure above; in thickness indicated for studs and in width to accommodate depth of studs. Refer to manufacturer's recommendations for use in axial load-bearing stud conditions or above continuous window spandrels.
      - 1) Deep-Leg Deflection Track: ASTM C 645 top runner with 2-inch deep flanges. Requires U-Channels and angles installed continuously throughout the uppermost punch-outs to align the studs vertically within the plane of the wall.
      - 2) Slotted Deflection Track: ASTM C 645 Top runner with 2 1/2" deep flanges with vertical slots.
  3. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
    - a. Minimum Base Metal Thickness: 0.0179 inch.
  4. Cold-Rolled Channel Bridging: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, and in depth indicated.
    - a. Clip Angle: 1-1/2 by 1-1/2 inch, 0.068-inch-thick, galvanized steel.
  5. Hat-Shaped, Rigid Furring Channels: ASTM C 645, in depth indicated.
    - a. Minimum Base Metal Thickness: 0.0179 inch
  6. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission. Asymmetrical or hat shaped, with face attached to single flange by a slotted leg (web) or attached to two flanges by slotted or expanded metal legs.
  7. Cold-Rolled Furring Channels: 0.0538-inch bare steel thickness, with minimum 1/2-inch-wide flange, and in depth indicated.
    - a. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare steel thickness of 0.0312 inch.
    - b. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch-diameter wire, or double strand of 0.0475-inch diameter wire.

8. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum bare metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.
9. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power and other properties required to fasten steel members to substrates.

## 2.2 PANEL PRODUCTS

- A. Panel Size, General: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Gypsum Wallboard: ASTM C 1396.
  1. Regular Type: In thickness indicated and with long edges tapered and featured (rounded or beveled).
  2. Type X: In thickness indicated and with long edges tapered and featured (rounded or beveled).
- C. Flexible Gypsum Wallboard: ASTM C 1396, manufactured to bend to fit tight radii and to be more flexible than standard regular-type panels of the same thickness, 1/4 inch thick, and with long edges tapered. Apply in double layer at curved assemblies.
- D. Abuse-Resistant Gypsum Wallboard: ASTM C 1396, manufactured to produce greater resistance to surface indentation and through-penetration per ASTM C1629 than standard gypsum panels, with core type and in thickness indicated, and with long edges tapered.
  1. Products:
    - a. National Gypsum Company; Gold Bond Hi-Abuse Wallboard.
    - b. United States Gypsum Co.; SHEETROCK Brand Abuse-Resistant Gypsum Panels.
    - c. American Gypsum Company, M-Bloc AR with mold and moisture resistance.
- E. Exterior Gypsum Sheathing Panels for Walls, Parapets, Ceilings and Soffits:
  1. Exterior Glass-Mat Gypsum Soffit and Ceiling Board: ASTM C 1396/C 1396M and C 1177/C 1177M, with core type and in thickness indicated and with manufacturer's standard edges.
    - a. Product: G-P Gypsum Corp; Dens-Armor Plus. Install manufacturer's recommended taping system over joints.
  2. Glass-Mat Gypsum Sheathing Board (exterior walls): ASTM C 1177/C 1177M, with core type and in thickness indicated.
    - a. Products:
      - 1) G-P Gypsum Corp; Dens-Glass Gold. Install manufacturer's recommended taping system over joints.
      - 2) CertainTeed Gypsum; GlasRoc high-performance sheathing. Install manufacturer's recommended taping system over joints.
      - 3) United States Gypsum Co.; SECUROCK Glass-mat sheathing. Install manufacturer's recommended taping system over joints.
      - 4) American Gypsum Company, M-Glass Exterior Sheathing. Install manufacturer's recommended taping system over joints.
  3. Glass-Mat Gypsum Sheathing Board (roof side of parapets): ASTM C 1177/C 1177M, with core type and in thickness indicated.
    - a. Product: G-P Gypsum Corp; Dens-Deck Roof Board.
    - b. United States Gypsum Co.; SECUROCK Glass-Mat Roof Board.

## F. Tile Backing Panels:

1. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M, with core type and in thickness indicated.
2. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with core type and in thickness indicated.
  - a. Product: G-P Gypsum Corp.; Dens-Shield Tile Backer.
  - b. Product: CertainTeed Gypsum; DiamondBack Tile Backer.
  - c. Or approved equal.

## 2.3 TRIM ACCESSORIES

## A. Interior Trim: ASTM C 1047.

1. Corner bead: Use at outside corners.
2. Bullnose Bead: Use at outside corners.
3. LC-Bead: Use at exposed panel edges.
4. L-Bead: Use where indicated.
5. U-Bead: Use where indicated.
6. Expansion (Control) Joint: Use as noted below and where indicated on drawings.
  - a. Ceilings
    - 1) Install control joints in areas exceeding 2500 sq. ft. (232 sq. m).
    - 2) Space control joints not more than 50 feet (15.2 m) o.c.
    - 3) Install control joints where ceiling framing or furring changes direction.
  - b. Partitions and Furring
    - 1) Install control joints in partitions and wall furring runs exceeding 30 feet.
    - 2) Space control joints not more than 30 feet o.c.
    - 3) Install control joints in furred assemblies where control joints occur in base exterior wall
7. Curved-Edge Corner bead: With notched or flexible flanges; use at curved openings.

## B. Exterior Trim: ASTM C 1047, hot-dip galvanized steel sheet or rolled zinc.

1. Corner bead: Use at outside corners.
2. LC-Bead: Use at exposed panel edges.
3. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening. Use as noted below and where indicated on drawings.
  - a. Ceilings
    - 1) Install control joints in areas exceeding 2500 sq. ft. (232 sq. m).
    - 2) Space control joints not more than 50 feet (15.2 m) o.c.
    - 3) Install control joints where ceiling framing or furring changes direction.

## C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Products:
  - a. Fry Reglet Corp.; As indicated by designation on Drawings
  - b. Gordon, Inc.; As indicated by designation on Drawings
  - c. MM Systems Corporation; As indicated by designation on Drawings
  - d. Pittcon Industries; As indicated by designation on Drawings
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, alloy 6063-T5.
3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified

## 2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper.
  - 2. Glass-Mat Gypsum Soffit Board: As recommended by panel manufacturer.
  - 3. Glass-Mat Gypsum Sheathing Board: As recommended by panel manufacturer.
  - 4. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, flanges of trim accessories, and fasteners, use setting-type taping compound.
    - a. Use setting-type compound for installing paper-faced metal trim accessories.
  - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Exterior Applications:
  - 1. Glass-Mat Gypsum Soffit Board: As recommended by manufacturer.
  - 2. Glass-Mat Gypsum Sheathing Board: As recommended by manufacturer.
- E. Joint Compound for Tile Backing Panels:
  - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping and setting-type, sandable topping compounds.
  - 2. Glass-Mat, Water-Resistant Backing Panel: As recommended by manufacturer.
  - 3. Cementitious Backer Units: As recommended by manufacturer.

## 2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
  - 1. Products:
    - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
    - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
- C. Acoustical Sealant for Concealed Joints: Nondrying, non-hardening, non-skinning, non-staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
  - 1. Products:
    - a. Ohio Sealants, Inc.; Pro-Series SC-170 Rubber Base Sound Sealant.
    - b. Pecora Corp.; BA-98.
    - c. Tremco, Inc.; Tremco Acoustical Sealant.
- D. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
  - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- E. Sill Seal at Exterior Walls:
1. Sill Seal: Provide flexible polyethylene foam gasketing strip between concrete foundation and sill plate. Strip shall be .25" x 5.5" for 6" metal stud walls. Provide "Weathmate Sill Seal" by Dow Building Solutions or equal.
- F. Sound Attenuation Blankets: Refer to Division 07 Section "Blanket Insulation".
- G. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

### PART 3 - EXECUTION

#### 3.1 NON-LOAD-BEARING STEEL FRAMING INSTALLATION

- A. General: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Suspended Ceiling and Soffit Framing:
1. Suspend ceiling hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Attach hangers to structural members. Do not support ceilings from or attach hangers to permanent metal forms, steel deck tabs, steel roof decks, ducts, pipes, or conduit.
  4. Screw furring to framing.
  5. Wire-tie or clip furring channels to supports, as required to comply with requirements for assemblies indicated.
  6. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- C. Partition and Soffit Framing:
1. Where studs are installed directly against exterior walls, install isolation strip between studs and wall.
  2. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
  3. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb, unless otherwise indicated.



4. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- D. Z-Furring Members: Erect insulation vertically and hold in place with Z-furring members.
1. Until gypsum board is installed, hold insulation in place with 10-inch staples fabricated from 0.0625-inch diameter, tie wire and inserted through slot in web of member.

### 3.2 PANEL PRODUCT INSTALLATION

- A. Gypsum Board: Comply with ASTM C 840 and GA-216.
1. Space fasteners in panels that are tile substrates a maximum of 8 inches on center.
  2. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  3. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
    - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
  4. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  5. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.
  6. Multilayer Fastening Methods: Fasten base layers; and face layers separately to supports with screws; fasten face layers with adhesive and supplementary fasteners; or, as required to comply with requirements for fire-resistance-rated assemblies indicated.
  7. Laminating to Substrate: Comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- B. Exterior Ceilings and Soffits: Apply exterior gypsum panels perpendicular to supports, with end joints staggered and located over supports.
1. Fasten with corrosion-resistant screws.
- C. Tile Backing Panels:
1. Water-Resistant Gypsum Backing Board: Install with 1/4-inch gap where panels abut other construction or penetrations.
  2. Glass-Mat, Water-Resistant Backing Panel: Install with 1/4-inch gap where panels abut other construction or penetrations.
  3. Cementitious Backer Unit Application: ANSI A108.11.

### 3.3 FINISHING

- A. Installing Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Finishing Gypsum Board Panels: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.

1. Prefill open joints, rounded or beveled edges, and damaged surface areas.
  2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
  3. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
  4. Glass-Mat, Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
- C. Cementitious Backer Units: Finish according to manufacturer's written instructions.
- D. Label all rated walls above ceilings or below raised access floors using verbiage, lettering, size, color and spacing as required by code and AHJ.
- E. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840 and GA 214, for locations indicated:
1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
  2. Level 2: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges where panels are substrate for tile and where indicated.
  3. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges of all panel surfaces that will be exposed to view, unless Level 5 finish is otherwise indicated.
  4. Level 5: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges and apply a final skim coat over the entire surface of panels that will be exposed to view. Use Level 5 for gypsum panel surfaces to be finished with gloss, semi-gloss or enamel paint unless otherwise indicated.

END OF SECTION 09 21 16

## SECTION 09 30 00 - TILING

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. Provide all of the labor, materials, equipment and services to furnish and install the tile and accessories as indicated on the Drawings and as specified herein.
- B. This section includes the following:
  - 1. Quarry tile
  - 2. Glazed tile
  - 3. Porcelain tile
  - 4. Stone thresholds.
  - 5. Waterproof membrane.
  - 6. Crack-isolation membrane.
  - 7. Tile backing panels.
  - 8. Metal edge/transition.

#### 1.2 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- D. Face Size: Actual tile size, (minor facial dimension as measured per ASTM C 499) excluding spacer lugs.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Dynamic Coefficient of Friction: For tile installed on walkway, surfaces, provide products that meet the requirements of ANSI A137.1-2012 testing method, the DCOF Acu Test.
  - 1. Minimum DCOF: 0.42 for level interior spaces expected to be walked upon when wet.

#### 1.4 PRE-INSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
  - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

#### 1.5 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, comply with the following:
  - 1. "Handbook for Ceramic Tile Installation" (latest edition) as published by the Tile Council of America, Inc., TCNA.

2. "American National Standard Specifications for Ceramic Tile "  
(ANSI 108 Series of tile installation and in ANSI 137.1 and A137.3-latest edition).
3. ANSI Specifications: American National Standard Specification for Installation of Ceramic Tile. Reference number is at specific installation area.

**B. Tile contractor, by commencing the work of this section, assumes overall responsibility to assure that all assemblies, components and parts shown or required within the work of this section comply with contract documents and are compatible with each other and with the conditions and expected use.**

- C. Pre-Installation Meeting: Prior to tile installation, conduct a pre-installation project meeting. Contractor, Subcontractor, Material Suppliers, Manufacturer representative, Architect and Owner Representative shall be notified of the meeting.
- D. Source Limitations for Tile: Obtain all tile and Setting and Grouting Material from one source.
- E. Source Limitations for Setting and Grouting Material: obtain ingredients of a uniform quality for each mortar, adhesive and grout component from a single manufacturer and each aggregate from one source.
- F. Source Limitations for other Products: Obtain each of the following products specified in this section through one source from a single manufacturer. If manufacturer has products in multiple categories, then that manufacturer must be used for all.
1. Stone Thresholds
  2. Waterproofing
  3. Joint Sealants or Movement Joint Profiles
  4. Metal edge strip
  5. Uncoupling or Anti-Fracture Membrane
- G. Installer Qualification: Engage an installer that has a minimum of five years' commercial experience with tile installations similar in material, design and scope to that indicated.

#### 1.6 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
1. Physical samples:
    - a. Tile and tile accessory pieces: Submit two (2) samples of each type and color specified.
    - b. Grout.
    - c. Metal edge strips in 6-inch lengths.
  2. Master Grade Certificate, signed by an officer of the firm manufacturing the tile used, and issued when the shipment is made, stating the grade, kind of tile, identification marks for tile containers, and the name and location of the Project.
- B. Maintenance and operation manual: Submit tile manufacturer's maintenance guides for Owner's use in maintaining all tile herein specified.
- C. Shop Drawings: Show location of each type of tile and tile pattern. Show widths, details and locations of expansion, contraction, control and isolation joints in tile substrates and finished tile surfaces.

- D. Product Data: For each product indicated.
- E. Qualification Data: For firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

#### 1.7 PRODUCT HANDLING:

- A. Deliver all materials of this Section to the job site in their original unopened containers with all labels intact and legible at time of use.

#### 1.8 EXTRA MATERIALS:

- A. Deliver extra materials to Site. Furnish extra materials described below that match products installed, and are packaged with protective covering for storage, and are identified with labels describing contents, name of project and the project's address.
  - 1. Tile and Trim Units: Furnish 1 box of full size units for each type, composition, color, pattern, and size indicated.
  - 2. This material shall not be available to the Contractor for replacement goods within the Contractor's General Warranty period for the Work.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  - 1. Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product aesthetically closely matching, as well as matching listed performance characteristics of another name or unnamed manufacturer.

#### 2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
  - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
  - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI Standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
  - 1. As selected by Architect from manufacturer's full range.
- D. Factory Blending: For tile exhibiting color variations within ranges selected during sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved samples.

- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
  - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

### 2.3 FLOOR TILE PRODUCTS

- A. Manufacturers:
  - 1. Basis of Design: Florida Tile Inc.
  - 2. Crossville Ceramics Company, L.P.
  - 3. Dal tile; Div. of Dal-Tile International Inc.
  - 4. StonePeaks Ceramics
- B. FLOOR TILE – (PT-1) UNGLAZED PORCELAIN TILE:
  - 1. (PT-1) Basis-of-Design: Florida Tile: Aventis product #AFG-AT3RF, color Titanium.
  - 2. (TR-5) Basis-of-Design: Schluter; DILEX-AHK, color satin anodized aluminum. (TR-5) Cove floor to wall tile. See details 1/A704.
  - 3. Grout: (GR-1) Mapei – Kerapoxy, Epoxy, #09 Gray.
  - 4. Composition: U.S. manufacturer, unglazed color body, mosaic tile. Impervious body, tile with 1/2% absorption. 40% pre-consumer recycle content with Microban.
  - 5. Size: 24" X 24" square
  - 6. Thickness: 10 mm, rectified edge.
  - 7. Face: Matte
  - 8. DFOC: Not less than 0.42
  - 9. Breaking Strength: 410 lbf. Avg.
  - 10. Installation Pattern: Square Grid Pattern.
  - 11. Installation: ANSI A108.0 & 2A118.10 and F121 thick set tile area.
  - 12. General Substrate Tolerance: Floors must meet the ANSI A108.02 and MIA's DSDM. The Finish flatness allowable deviation for ceramic tile installation is 1/4" inch in 10 feet from a required plane according to ANSI.

### 2.4 WALL TILE PRODUCTS

- A. WALL TILE – (WT-1) GLAZED PORCELAIN WALL TILE:
  - 1. (WT-1) Basis-of-Design: Urban Foundry product # FTIFDY10, color Alumina.
  - 2. (TR-5 & TR-6) Basis-of-Design: Schluter; & (TR-5) DILEX-AHK satin anodized aluminum & (TR-6) Schiene, color brushed stainless steel. Cove floor to wall tile. See detail 1/A704.
  - 3. Grout: (GR-2) Tec Specialty – In-color Advance Performance, #927 Light Pewter.
  - 4. Composition: U.S. manufacturer, high definition glazed color body porcelain tile, with Microban. Impervious body, tile with .5% absorption. 40% pre-consumer recycle content.
  - 5. Size: (WT-1): 12" X 24".
  - 6. Thickness: 9 mm, rectified.
  - 7. Face: Surface Hardness 7 Mohs
  - 8. DFOC: Not less than 0.42

9. Breaking Strength: 490 Lbf. Avg.
10. Installation Pattern: Horizontal 1/3 offset running bond.
11. Installation: TCNA W202I for LFT/LHT Medium Bed Plus – no sag.

## 2.5 TILE ACCESSORIES & TRIM:

### A. METAL FINISHING AND EDGE PROTECTION PROFILE FOR WALLS & FLOORS:

1. Description: Basis-of-Design - (TR-3 & TR-6) Schluter; L-shaped profile with 1/8 inch (3.2 mm) wide top section vertical wall section that together form the visible surface, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.

## 2.6 TILE BACKING PANELS:

### A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325, Type A, in maximum lengths available to minimize end to end butt joints.

1. Thickness: 5/8"

## 2.7 CRACK ISOLATION MEMBRANE / UNCOUPLING MEMBRANE:

### A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10/ANSI A118.12 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer. Provide 125 full spread on grade slab and F128 on 2<sup>nd</sup> floor and above and all full coverage applications.

### B. F125 Full Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

1. Basis-of-Design Products: Subject to compliance with requirements, provide "Mapelastick CI" crack-isolation membrane as manufactured by Mapei Corporation or comparable product offered by one of the following:
  - a. Custom Building Products.; "RedGard Waterproofing and Crack Prevention Membrane."
  - b. Laticrete International, Inc.; "Hydro Ban."

### C. UNCOUPLING MEMBRANE

1. F 128: Uncoupling Membrane: Description: Basis of Design: Schluter Systems L.P, Ditra, DitraXL or Ditra Duo. 1/8 inch (3 mm) thick, orange, high-density polyethylene membrane with a grid structure of 1/2 inch by 1/2 inch (12 mm by 12 mm) square cavities, each cut back in a dovetail configuration, and a polypropylene anchoring fleece laminated to its underside. Conforms to definition for uncoupling membranes in the Tile Council of North America Handbook for Ceramic Tile Installation and is listed by cUPC to meet or exceed the requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).
2. Waterproofing seaming membrane:
  - a. Provide Seams and Corners material 0.004 inch (0.1 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides.

## 2.8 WATERPROOFING MEMBRANES (SHOWER AREAS)

- A. General: Manufacturer's standard product, selected from the following, which complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Sheet Applied Waterproofing Membrane  
Description: 0.008 inch (0.2 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides, which is listed by cUPC to meet or exceed requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).
  - 1. Product: Schluter Systems L.P; Kerdi.
- C. Bonding Adhesive: Type recommended by sheet membrane manufacturer to suit application
  - 1. Basis of Design: Schluter Systems L.P: Schluter- ALL SET Modified Thin Set Mortar
- D. Seam Sealant: Type recommended by sheet membrane manufacturer.

## 2.9 INSTALLATION TYPE - SETTING BED:

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Bonsal American, an Oldcastle company.
  - 2. Laticrete International, Inc.
  - 3. MAPEI Corporation.
  - 4. TEC; H.B. Fuller Construction Products Inc.
- B. Latex-Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
  - 1. Cleavage Membrane: Asphalt felt, ASTM D 226/d 226M, Type I (No. 15): or polyethylene sheeting, ASTM D 4397, 4.0 mils thick.
  - 2. Reinforcing Wire Fabric: Galvanized, welded-wire fabric, 2 by 2 inches by 0.062-inch diameter; comply with ASTM A 185/A 185M and ASTM A 82/A 82M, except for minimum wire size.
  - 3. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.
- C. High-Performance Latex-Portland Cement Mortar (Thinset): ANSI A118.15.
  - 1. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
  - 2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.15.
- D. High-Performance Medium-Bed, Latex-Portland Cement Mortar: Comply with requirements in ANSI A118.15. Provide product that is approved by manufacturer for application thickness of 3/4 inch.
  - 1. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.



## E. Water-Cleanable, Tile-Setting Epoxy: ANSI A118.3.

1. Products: Subject to compliance with requirements, provide one of the following:
  - a. Custom Building Products; CEG Lite.
  - b. Laticrete International Inc.; SpectraLock Pro Premium.
  - c. MAPEI Corporation; Kerapoxy.
  - d. TEC: H.B. Fuller Construction Products Inc.; Accucolor EFX mortar.
2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

## 2.10 GROUT:

## A. High-Performance Tile Grout: ANSI A118.7.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. ARDEX Americas.
  - b. Custom Building Products; Prism.
  - c. Laticrete International Inc.; Perm color Select.
  - d. MAPEI Corporation; Ultra color Plus.
  - e. TEC: H.B. Fuller Construction Products Inc.; Power Grout.
2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
3. Color: As selected by Architect from manufacturer's full range.

## B. Water-Cleanable Epoxy Grout: ANSI A118.3.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Custom Building Products; CEG Lite.
  - b. Laticrete International, Inc.; Spectralock Pro Premium.
  - c. MAPEI Corporation; Kerapoxy.
  - d. TEC: H.B. Fuller Construction Products Inc.; Accucolor EFX.
2. Provide product capable of withstanding continuous and intermittent exposure to temperatures of up to 140 and 212 deg F, respectively, and certified by manufacturer for intended use.

## 2.11 THRESHOLD &amp; TRANSITIONS:

- A. Marble: White Carrara, polished exposed surface; Marble threshold shall be 2" wide and of a thickness appropriate for thin-set application
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications, stainless steel; ASTM A 666, 300 Series exposed-edge material.

1. Description: Basis of Design: Schluter Systems L-shaped profile with 1/8 inch (3.2 mm) wide visible surface integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
2. Description: Basis of Design: Schluter Systems profile with sloped exposed surface, 1/4 inch (6 mm) deep channel below exposed surface, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
3. Description: Basis of Design: Schluter Systems profile with sloped exposed surface, 5/32 inch (4 mm) tall leading edge, integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.

#### 2.12 MOVEMENT JOINTS AND COVE-SHAPED PROFILES

- A. Description: Basis of Design: Schluter Systems L.P: "DILEX" profile with integrated aluminum, trapezoid-perforated anchoring legs, connected by grip bars to a 1/4 inch (6 mm) wide soft PVC movement zone, which together form the visible surface.
- B. Description: Basis of Design: Schluter Systems L.P: "DILEX" profile with integrated trapezoid-perforated anchoring legs, connected by a 7/16 inch (11 mm) wide replaceable thermoplastic rubber movement zone, which together form the visible surface.

#### 2.13 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; half- hard brass or white zinc alloy exposed-edge material as selected by Architect.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- D. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.
  1. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- E. Joint Sealant: Silicone, S, NS, 25, T, NT: Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, Shore A hardness not less than 35, traffic- and non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Uses T and NT.

#### 2.14 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.

- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
  - 2. Verify substrates comply with the flatness tolerances required by ANSI A108.01 and the following:
    - a. Tile with no edge larger than 15 inches; 1/4-inch in 10 feet.
    - b. Large Format Tile (15 inches or more on a side): 1/8 inch in 10 feet.
  - 3. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
    - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
    - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
  - 4. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
  - 5. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

#### 3.3 CERAMIC TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108

series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
  - a. Tile floors in wet areas.
  - b. Tile floors in laundries.
  - c. Tile floors consisting of tiles 8 by 8 inches or larger.
  - d. Tile floors consisting of rib-backed tiles.
  
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
  
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
  
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
  
- E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
  
- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
  1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
  2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
  3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
  
- G. Joint Widths: Unless otherwise indicated, install tile with the joint widths the narrowest joint recommended in writing by tile manufacturer.
  
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
  
- I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
  1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them and of equal or greater widths.
  2. Where tilework abuts restraining surfaces such as perimeter walls, curbs, columns, and ceilings.
  3. Where there is a change in substrate material.
  4. Interior Tilework: 20 to 25 feet in each direction.
  5. Above ground concrete substrates: 8 to 12 feet in each direction.
  6. Interior tilework exposed to direct sunlight: 8 to 12 feet in each direction.
  7. Interior tilework exposed to moisture: 8 to 12 feet in each direction.

- J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
  - 1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thinset).
  - 2. Do not extend cleavage membrane waterproofing or crack isolation membrane under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on cleavage membrane waterproofing or crack isolation membrane with elastomeric sealant.
- K. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated, and at locations indicated.
- L. Floor Sealer: Apply floor sealer to cementitious grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

### 3.4 TILE BACKING PANEL INSTALLATION

- A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.

### 3.5 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
  - 1. In all Toilet Rooms, Shower Rooms and Locker Rooms, cover entire floor with waterproofing/anti-fracture membrane and fabric reinforcement, extend waterproofing/anti-fracture membrane and fabric reinforcement up all walls a minimum of 4 inches. Waterproof all pipe and drain penetrations through membrane.
    - a. At showers, including changing area, install waterproofing/anti-fracture membrane and fabric reinforcement full height on walls under ceramic tile and lap over waterproof/anti-fracture membrane at base.
      - 1. Install fabric reinforcing according to manufacturer's instructions.
    - b. At all pipe and drain penetrations through waterproofing/anti-fracture membrane comply with the following:
      - 1. Install fabric reinforcing according to manufacturer's instructions.
      - 2. Extend waterproofing/anti-fracture membrane and fabric reinforcement into flange of floor drains.
      - 3. Extend waterproofing anti-fracture membrane and fabric reinforcement into pipe and conduit penetrations through waterproofing.
- B. Do not install tile over waterproofing/anti-fracture membrane until waterproofing/antifrcature has cured and been tested to determine that it is watertight.

### 3.6 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

- B. Allow crack isolation membrane to cure before installing tile or setting materials over it.
- C. Fabric-Reinforced, Modified-Bituminous Sheet: Use where required to bridge existing cracks and to relocate crack control joints to coordinate with nearest tile grout joint: Install in accordance with manufacturer's instructions. Clean and prime concrete surface and allow primer to dry. Set self-adhering sheet in place, remove release sheet, and roll sheet to ensure full contact with substrate.

### 3.7 ADJUSTING AND CLEANING

- A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

### 3.8 PROTECTION

- A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
  - 1. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

### 3.9 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor recessed minimum 2 inches and as required for slopes:
  - 1. Ceramic Tile Installation PT-?: TCNA F121 with F112 bonded wire-reinforced mortar bed; water-cleanable, tile-setting epoxy on fluid-applied waterproofing membrane over cured cement mortar bed bonded to concrete subfloor on ground.
    - a. Ceramic Tile Type: Unglazed quarry tile and base.
    - b. Grout: Industrial grade, chemical resistant, water-cleanable epoxy grout ANSI 108.6 and ANSI 118.5.
    - c. Application: Food service areas with slope to drain, including adjacent toilet room. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  - 2. Ceramic Tile Installation PT-?: TCNA F122; thinset mortar on full waterproofing membrane.
    - a. Ceramic Tile Type: Unglazed quarry tile and base.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Industrial grade, chemical resistant, water-cleanable epoxy grout ANSI 108.6 and ANSI 118.5.
    - d. Fluid-applied waterproofing membrane.

- e. Application: Food service areas without slope to drain, including adjacent toilet room. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
- 3. Ceramic Tile Installation PT-?: TCNA F121 with F112 bonded wire-reinforced mortar bed; fluid-applied waterproofing membrane over cured cement mortar bed bonded to concrete subfloor on ground.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Bond Coat for Cured-Bed Method: Medium-bed latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout ANSI 108.6.
    - d. Fluid-applied waterproofing membrane.
    - e. Application: Toilet rooms on slab on ground with slope to drain. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  - 4. Ceramic Tile Installation PT-?: TCNA F122; medium-bed mortar on full waterproofing membrane.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Mortar: Medium-bed, latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout ANSI 108.6.
    - d. Fluid-applied waterproofing membrane.
    - e. Application: Toilet rooms on above-ground slab without slope to drain. Extend waterproofing membrane to drain flanges and flashed up perimeter walls and in-field interruptions including columns, chases, and wing walls to form watertight installation.
  - 5. Ceramic Tile Installation PT-?: TCNA F125-Full; medium-bed mortar on full crack isolation membrane.
    - a. Ceramic Tile Type: Unglazed porcelain pavers.
    - b. Thinset Mortar: Medium-bed, latex- portland cement mortar.
    - c. Fluid-applied crack isolation membrane.
    - d. Grout: High-performance sanded grout.
    - e. Application: Dry areas.
- B. Interior Wall Installations, Masonry or Concrete:
- 1. Ceramic Tile Installation: TCNA W202; thinset mortar.
    - a. Ceramic Tile Type: Glazed wall tile.
    - b. Thinset Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
- C. Interior Wall Installations, Metal Studs or Furring:
- 1. Ceramic Tile Installation (WT-1, WT-2 & WT-3): TCNA W244C or TCNA W244F; thin-set mortar on cementitious backer units.
    - a. Ceramic Tile Type: Glazed wall tile.
    - b. Thin-set Mortar: Latex- portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
- D. Shower Receptor and Wall Installations:

1. Ceramic Tile Installation PT-?: TCNA B421; thinset mortar on waterproof membrane over solid backing.
  - a. Ceramic Tile Type: Glazed wall tile.
  - b. Ceramic Tile Type: Porcelain tile at receptor floor.
  - c. Thinset Mortar: Latex-portland cement mortar.
  - d. Grout: Water-cleanable epoxy grout.

END OF SECTION 09 30 00



## SECTION 09 51 00 - ACOUSTICAL CEILINGS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. The work covered by this section consists of furnishing all labor and materials for the complete installation of acoustical tile ceilings.

#### 1.2 QUALITY ASSURANCE:

- A. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations published by the Ceilings and Interior Systems Contracting Association and the requirements of ASTM C636 (latest edition).
- B. Seismic Loads: Design and size components to withstand seismic loads in accordance with the local governing building code, for the seismic design category as indicated on the structural drawings.
- C. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Class **A** according to ASTM E1264.
  - 2. Smoke-Developed Index: **50** or less.
  - 3. Flame Spread Index **25** or less.

#### 1.3 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Submit manufacturer's project specifications and installation instructions for each type of acoustical panel and suspension system required, including certified laboratory test reports and other data necessary to show compliance with these specifications.
  - 2. Include manufacturer's recommendations for cleaning and refinishing acoustical panels, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.
  - 3. Shop drawings, showing layout of each type of ceiling system in relation to surrounding structure, mechanical work (which shall include, but not be limited to, duct work and piping), lighting and electrical work, and any other pertinent fixtures and equipment. Drawings shall also show location of accessible panels. The reproduction of Architect's Drawings as the basis of these shop drawings will not be acceptable.
  - 4. Physical Samples: Furnish one sample of each type of ceiling board or tile and exposed grid in finish and pattern specified.

#### 1.4 JOB CONDITIONS:

- A. Do not install interior acoustical panel ceilings until space enclosed and weatherproof, and until work above ceilings completed, and unit ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

## 1.5 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Ceiling Panels: 2 unopened boxes for each type indicated.
- B. This material shall not be available to the contractor for replacement goods within the building warranty period.

## PART 2 - PRODUCTS

## 2.1 ACOUSTICAL CEILING:

- A. Manufacturers:
1. USG
  2. Armstrong
  3. CertainTeed, Celotex.
  4. Or approved equal
- B. Ceiling Type's/Acoustical Ceiling Panels:
1. Ceiling Type #1: ACT-1: 2'X2' Acoustical ceiling tile with beveled tegular edge and 9/16" suspension grid.
    - a. Armstrong; Ultima, Beveled Tegular edge lay-in, No. 1912 (White), 24"x24"x3/4", (White) with 9/16" Superfine Exposed Grid.
    - b. CertainTeed; Symphony M Tegular edge lay-in, No. 1222F-IOF-1 (White), 24"x24"x3/4" (White) with 9/16" Narrow Reveal Grid.
    - c. USG: Mars ClimaPlus. 86985, FLB (Fineline Beveled Edge), (White), 24"x24"x3/4" with 9/16" Centricitee DXT Grid.
  2. Ceiling Type #1A: Same ceiling acoustical tiles as Type #1, with 6" wide Knife edge perimeter trim similar or equal to Armstrong Axiom Knife edge trim AXKE2STR-WH straight pieces with outside corners AXKE900-WH (color to be WH-white).
  3. Ceiling TYPE #2: ACT-2: 2'X2' Acoustical ceiling tile High .80 NRC and .35+ CAC with tegular edge lay-in with 9/16" suspension grid. Provide 3 1/2" sound batt insulation above the ceiling tiles.
    - a. Armstrong; Ultima, Beveled Tegular edge lay-in, No. 1942 (White), 24"x24"x7/8", (White) with 9/16" Superfine Exposed Grid.
    - b. CertainTeed; Symphony M Tegular edge lay-in, No. 1222BF-85-1 (White), 24"x24"x7/8" (White) with 9/16" Narrow Reveal Grid.
    - c. USG: Mars ClimaPlus. 87100, FLB (Fineline Beveled Edge), (White), 24"x24"x7/8" with 9/16" Centricitee DXT Grid.
- C. Suspension System Components: Main beams and cross tees in accordance with the requirements of the local governing building code, for seismic design category D, E and F as described in ESR-1308.
1. Structural Classification: ASTM C 635, Heavy Duty.
  2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
  3. Represented Systems: Prelude XL 15/16" as manufactured by Armstrong World Industries.
  4. High Use Kitchen Application ACT-3: Components shall be formed from commercial

quality hot-dipped galvanized steel with aluminum cap.

- a. Attachment Devices: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F.
- b. Wire for Hangers and Ties: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F.
- c. Wall Moldings: In accordance with the requirements of the local governing building code, for seismic design Category D, E and F as described in ESR-1308.
  - 1) Nominal 7/8 inch x 7/8 inch hemmed, pre-finished angle molding (7800)

D. Accessories:

1. BERC2 – 2 inch Beam End Retaining Clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568 – used to join main beam or cross tee to wall molding.

2.2 OTHER MATERIALS:

- A. All other materials, not specifically described but required for a complete and proper installation of the suspended acoustical ceiling, shall be as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS:

- A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that suspended acoustical ceiling may be installed in accordance with the original design, all codes and regulations, the manufacturer's current recommendations and the approved submittals.
- C. In the event of discrepancy, immediately notify the Architect.
- D. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 COORDINATION WITH MECHANICAL AND ELECTRICAL:

- A. Coordinate with the requirements of other Trades. Use all means necessary to interface with adjacent materials.
- B. Where recessed lighting fixtures are installed in suspension system, consult with the fixture manufacturer prior to preparation of shop drawings so that the work of this Section shall be installed ready to receive the lighting fixtures. Modify the suspension system members adjacent to fixture locations as approved by the Architect and to the extent necessary to accommodate the fixtures.
- C. In the event lighting fixtures or air distribution or return air equipment other than those specified should be substituted under their respective Sections and/or Drawings and should the substituted fixtures require more extensive modifications, the Contractor shall make such required additional modifications and any additional cost shall be paid by the Contractor.

- D. Where wide or deep air conditioning ducts above suspended acoustical ceilings interfere with suspension hangers, provide independent framing below the duct work to support the ceiling as an obligation under this Section. Framing shall meet the approval of the Architect. Framing shall be supported from floor or roof structure above and shall in no case be attached to the duct work, piping or conduit.

### 3.3 SUSPENDED CEILING INSTALLATION:

- A. Comply with ASTM C 636 as applicable to acoustical panel ceilings, except to extent more stringent requirements indicated or required for compliance with governing regulations or fire resistance ratings.
- B. Suspend ceiling hangers from building structural members only, and only as indicated.
  - 1. Secure to structure, including intermediate framing members, by attaching to metal clips designed for type of member involved, or where possible, by looping and wire-tying directly to members.
- C. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hanger not more than 6" from ends of each member.
- D. For the support of light fixtures, the fixture load shall be supported by supplemental hangers within 6" of each corner, or the fixture shall be supported separately.

### 3.4 MOLDINGS:

- A. Cope exposed flanges of intersecting members so that flange faces will be flush.
- B. Install edge moldings of type indicated at edges of each acoustical panel ceiling area, and at locations where edge of panel would otherwise be exposed after completion of work.
- C. Secure moldings to building construction by fastening through holes drilled in vertical leg. Space holes not more than 3" from each end and not more than 16" o.c. Draw-up fasteners for tight set against vertical surfaces.
- D. Miter corners of moldings accurately to provide hairline joints.
- E. Level moldings with ceiling suspension system, to level tolerance of 1/8" in 12'-0".

### 3.5 ACOUSTICAL PANEL INSTALLATION:

- A. Plan each layout to balance border widths at opposite edges of each ceiling area. Avoid use of less-than-half width units wherever possible. Comply with Architect's reflected ceiling plans to greatest extent possible.
- B. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members.
- C. Scribe and cut panels for accurate fit at borders and at interruptions and penetrations by other work through ceilings.

### 3.6 CLEANING AND PROTECTION:

- A. Clean exposed surfaces of acoustical panels and of trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- B. Institute required protection for acoustical panel ceilings, including temperature and humidity limitations and dust control, so that work will be without damage and deterioration at time of substantial completion.

END OF SECTION 09 51 00



## SECTION 096513 - RESILIENT BASE AND ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Thermoplastic-rubber base.
  - 2. Rubber stair accessories.
  - 3. Homogeneous Composition of Polyvinyl Chloride (PVC) molding accessories.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

### PART 2 - PRODUCTS

#### 2.1 THERMOPLASTIC & THERMOSET RUBBER BASE – (B).

- A. Subject to compliance of all specifications in this section.  
Acceptable manufacturers:
  - 1. Flexco
  - 2. Mannington
  - 3. Allstate Rubber
  - 4. Roppe
- B. Product Standard: ASTM F1861, Type TS thermoset rubber.
  - 1. Basis of Design: Tarkett, TSB-29-4 TOE, 29 Moon Rock.
  - 2. Style; see A700 Room Finish Schedule for location:
    - a. (B-1) - Cove base.
      - 1. 0.125 thick.
      - 2. 4" High.
      - 3. Minimum length: 8'-0" or full coil length
      - 4. Inside corners: Score back for a tight to wall (no gap) install or a tight miter acceptable.
      - 5. Outside corners: Score back for a tight to wall (no gap) install. Snipped cove is acceptable if required.
- C. Product Standard: ASTM F1861, Type TP thermoplastic.
  - 1. Basis of Design: Tarkett, MW-29-F, 29 Moon Rock.
  - 2. Style; see A700 Room Finish Schedule for location:
    - a. (B-2) - Reveal Profile (Sculpture "Wood Look Profile") Base.
      - 1. 0.25 thick.
      - 2. 4.25" High.

3. A 45° angular top and a 7/32" (5.5mm) wide surface reveal.
  4. 8 ft. lengths.
  5. Mitered inside and outside corners.
3. Colors: As indicated by manufacturer's designations and listed on A700 Finish Legend.
  4. Provide "Color Rite" (or equal manufacturer) matching caulk if needed to finish and create acceptable final presentation of all trims.

## 2.2 RUBBER STAIR LANDING and ACCESSORIES - (STR) & (RF)

- A. Subject to compliance of all specifications in this section.  
Acceptable manufacturers:
  1. Flexco
  2. Mannington
  3. Allstate Rubber
  4. Roppe
- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
  1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- C. Stair Treads: (STR-1) ASTM F2169.
  1. Type: TP (rubber,).
  2. Pattern: Embossed, grooved, or ribbed as indicated on A700 Finish Legend.
  3. Provide 2" wide contrasting color grit tape insert for the visually impaired as scheduled.
  4. Square 2: high hinged nosing style:
  5. Thickness: .070.
  6. Size: Lengths and depths to fit each stair tread in one piece or, for treads exceeding maximum lengths manufactured, in equal-length units.
- D. Landing Tile: Matching treads; produced by same manufacturer as treads.
- E. Locations: Provide rubber stair accessories in areas indicated on sheet A700.
- F. Landing Colors and Patterns: Tarkett – BMRTS, 1/8" x 24" X 24" rubber tile

## 2.3 RUBBER MOLDING ACCESSORY (TR)

- A. Acceptable manufacturers:
  1. Roppe Corporation
  2. VIP Corporation
- B. (TR-1) Description, Tarkett (Basis of Design) 0.020" (5.0mm) LVT materials to carpet with total thickness of 0.21" (5.3mm) to 0.25" (6.4mm), 0.18" (4.6mm) cap with 0.13" (3.2mm) wide support.
  1. Profile: ME001, Color: 178 Ironstone
  2. Locations: As indicated on finish plans.



- C. (TR-2) Description, Tarkett (Basis of Design) Resilient Edge Guard Molding transition reducer strips with undercut for ¼” glue down carpet, 2 1/8” base surface.
  - 1. Profile – EG-29-H, Color- Moon Rock and Dimensions: As indicated.
  - 2. Locations: As indicated on finish plans.

## 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
  - 4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft. for each area, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
    - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

- b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until materials are the same temperature as space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

### 3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 8'-0" in length.
    - a. Form without producing discoloration (whitening) at bends.
  - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 8'-0" in length.
    - a. Miter or cope corners to minimize open joints.

### 3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Stair Accessories:
  - 1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.

2. Tightly adhere to substrates throughout length of each piece.
  3. For treads installed as separate, equal-length units, install to produce a flush joint between units.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

#### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Floor Polish: Remove soil, adhesive, and blemishes from resilient stair treads before applying liquid floor polish.
  1. Apply three coat(s).
- C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513



## SECTION 09 65 19 – RESILIENT TILE FLOORINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. Section Includes:
  - 1. Luxury vinyl tiles.

#### 1.2 SCOPE:

- A. Provide all of the labor, materials, equipment and services to furnish and install the resilient tile flooring and additionally named products.

#### 1.3 SUBMITTALS:

- A. Prior to installation, submit the following to the Architect for review:
  - 1. Manufacturer's literature fully describing each product and its proper installation for this Project.
  - 2. Physical sample (each product): All colors and patterns.

#### 1.4 EXTRA MATERIALS:

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents. Furnish no less than 1 box of each.

### PART 2 - PRODUCTS

#### 2.1 LUXURY VINYL TILE (LV)

- A. (LV-1 & LV-2) Basis of Design – Manufacturer: Patcraft, Style: Molten I478V, Colorway: (LV-1) 00780 Brownstone V-3 & (LV-2) 00540 Shale V-2. Heavy commercial luxury vinyl tile with fiberglass, Class III, Type B.
  - 1. Thickness: 5mm
  - 2. Finish / Coating: ExoGuard
  - 3. Pattern Repeat: 1/3 drop.
  - 4. Dimensions: 6” width x 48" length
  - 5. Backing Class: Commercial Grade
  - 6. Commercial Traffic: Heavy Commercial
  - 7. Wear layer thickness: 20 mil. (0.02 in)
  - 8. Installation: Direct glue
- B. Acceptable Manufacturers:
  - 1. JJ Flooring Group.
  - 2. Mannington
  - 3. Mohawk.

4. Shaw Contract.

## 2.4 ADHESIVES

- A. Provide manufacturer's standard adhesive for all locations not subject to significant moisture.
  1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. VCT Adhesives: Not more than 50 g/L.
    - b. Rubber Floor Adhesives: Not more than 60 g/L.
- B. Provide special adhesives when high moisture conditions exist. All bathrooms, janitor rooms, kitchens, breakrooms, entry ways/ lobby's etc. Install per manufacturer's recommendations.
  1. Acceptable Manufacturers
    - a. Mohawk, Nuspraylok Platinum
    - b. XL Brands, Evolution-ms 8500
    - c. Sealflex Industries, SI-Ultra Tac 255
    - d. Sprayloc 6500 platinum (manufacturer in the USA)

## 2.5 OTHER MATERIALS:

- A. All other materials, including but not limited to, adhesives, not specifically described but required for a complete and proper installation of resilient tile flooring and other named products, shall be only as recommended by the manufacturer of the material to which it is applied and shall be subject to the approval of the Architect.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS:

- A. Prior to all work of this Section, carefully inspect the installed work of all other Trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that resilient tile flooring shall be installed in accordance with the original design and the manufacturer's recommendations.
- C. In the event of discrepancy, immediately notify the Architect.
- D. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### 3.2 INSTALLATION:

- A. Install all products in strict accordance with the original design and the manufacturer's recommendations.
- B. In locations having higher moisture content or exposed to plumbing fixtures, a higher moisture resistant adhesive must be used. The adhesive should provide a minimum 10 lbs. moisture emission resistance and be necessary to include a ph blocker / primer.

## 3.3 CLEANING AND PROTECTION:

- A. Upon completion of the installation, immediately remove all surplus adhesive from adjacent surfaces. As soon as possible after installation, and in accordance with the timing recommended by the manufacturers, clean, seal, and wax all product surfaces according to manufacturer's recommendations
- B. Provide a non-staining paper pathway taped to the resilient flooring in direction of foot traffic throughout the Work.

END OF SECTION 09 65 19





## SECTION 09 68 13 - TILE CARPETING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes all of the labor, material, equipment and services to furnish and install carpet tiles.

#### 1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Show the following:
  - 1. Existing flooring materials to be removed.
  - 2. Existing flooring materials to remain.
  - 3. Carpet tile type, color, and dye lot.
  - 4. Pattern of installation.
  - 5. Insets and borders.
  - 6. Edge, transition, and other accessory strips.
  - 7. Transition details to other flooring materials.
- C. Samples: For each color and texture required.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- E. Maintenance data.

#### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Mockups: Before installing carpet tile, build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution, if requested by Owner or Architect.
  - 1. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

## 1.5 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

## 1.6 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
  - 1. Warranty Period: Lifetime Commercial Limited from date of Substantial Completion. The Company will pay the reasonable costs for product, freight and labor for claims filed within the first 15 years. After 15 years, the Company will pay only for product.  
LIFETIME COMMERCIAL LIMITED

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Carpet: For each type specified, boxes equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.
- B. This material shall not be available to the contractor for replacement goods within the building warranty period.

## PART 2 - PRODUCTS

## 2.1 CARPET TILE (CPT)

- A. Manufacturers:
  - 1. Provide one of the following manufacturers:
    - a. Patcraft
    - b. Mannington Commercial
    - c. J+J Commercial
    - d. Shaw Contract
    - e. Or approved equal. Product must be approved in writing 5 days prior to bid date by the Architect.
- B. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Basis of Design (CPT-1): Patcraft; Overlayer.
    - a. Color: 00540 Taupe Tuft
    - b. Pattern: Overlayer I0550
    - c. Source: Patcraft.com, @patcraftfloors.com, (800) 241-4014, Shaw Industries Group, Inc., a Berkshire Hathaway Company
- C. Fiber Content: 100% Solution Dyed Nylon.
- D. Fiber Type: EcoSolution Q100 Nylon
- E. Pile Characteristic: Multi-Level Pattern pile.
- F. Stitches: 10 per inches.
- G. Gauge: 1/12 inches, 0.83333 inches.
- H. Total Weight: 22 oz./sq. yd. for finished carpet tile.
- I. Primary Backing/Backcoating: Non-woven synthetic.
- J. Secondary Backing: EcoWorx.
- K. Size: 18 by 36 inches
- L. Environmental:
  - 1. Green Label Plus Certified
  - 2. Cradle to Cradle Certified Gold
  - 3. NSF 140 Gold
  - 4. Health Product Declaration
  - 5. Declare Label, red list compliant
  - 6. No PVC components

## 2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
1. For EcoWorx (fiberglass reinforced):
    - a. Shaw 5000 pressure sensitive: 5 lbs. 85% RH pH 5-9
    - b. Shaw 5100 pressure sensitive: 5 lbs. 85% RH pH 5-9
    - c. Shaw 5036 with antimicrobial: 5 lbs. 85% RH pH 5-9
    - d. Shaw 5800 for high moisture: 10 lbs. 95% RH pH 10
    - e. Shaw 3800 indoor/outdoor 8 lbs. 90% RH pH 5-9
    - f. LokDots dry adhesive: No visible moisture pH 12
    - g. LokWorx tabs: 10 lbs. 85 RH pH 12
    - h. Mill-applied ES: No visible moisture
- C. Primer (if needed): 9050 is an acrylic solution made to neutralize excess alkali that is also recommend as a primer coat to prevent over absorption of adhesive and to ensure a better bond. Formulated with an antimicrobial agent, it provides protection against bacteria, fungi, and mildew in the wet or dry state. Contains no solvent, alcohol, or other hazardous materials per OSHA 29 CFR 1910.1200. Non-photo chemically reactive per rule #102. Available in 4-gallon pails.
- D. Leveling and Patching Compounds: Use a cementitious patching/leveling compound that meets or exceeds the required moisture level and pH requirements. Use of gypsum-based patching and/or leveling compounds which contain Portland or high alumina cement and meet or exceed the compressive strength of 3,000 psi are acceptable.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer. Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- D. Install pattern brick parallel to walls and borders.

#### 3.2 CLEAN-UP AND PROTECTION

- A. Clean-up: Upon completion of the work, remove all waste, excess materials, tools and equipment from job site. Remove loose threads from carpeted surfaces. Remove adhesives from carpet and other surfaces, which are not scheduled to receive adhesive as they occur.
  1. Carefully and thoroughly vacuum clean carpeting with an upright bar type beater, vacuum cleaner.

2. Usable pieces (approx. one sq. yd. and larger) of carpet not required to complete the work, shall be left on the job site and shall be placed in an orderly manner in an area designated by the Architect for the Owner's use.
- B. Repair: Prior to acceptance of installation, carpet, which is damaged, stained, discolored, torn, ripped or otherwise not acceptable, shall be repaired and replaced with new material in an approved manner recommended by the Architect.
- C. Protection: Protect installed carpeting from damages by other Contractors and be responsible for installing protective materials over traffic areas and if necessary closing off areas to traffic.
- D. Instruction: After the installation is completed, the carpet manufacturer and contractor shall provide representative to instruct the Owner's maintenance personnel in the care, cleaning and maintenance of the installed carpet.

END OF SECTION 09 68 13



## SECTION 09 91 00 – PAINTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes surface preparation and field painting of the following:
  - 1. Exposed exterior items and surfaces.
  - 2. Exposed interior items and surfaces.
  - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from a full range of standard colors and finishes available.
  - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and ironwork, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels. Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections include the following:
  - 1. Division 02 through 09.
  - 2. Divisions 22, 23 and 26: Painting of plumbing, mechanical and electrical work is specified in Divisions 22, 23 and 26, respectively.

#### 1.3 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
  - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  - 2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
  - 3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
  - 4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
  - 5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

#### 1.4 SUBMITTALS

- A. Product Data: For each paint system specified. Include block fillers and primers.
  - 1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
  - 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use
- B. Samples for Initial Selection: Manufacturer's color fan deck showing the full range of colors available for each type of finish-coat material indicated.

#### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- B. Comply with MPI standards for products and paint systems.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

#### 1.7 PROJECT CONDITIONS

- A. Apply paints per Paint Manufacturer's conditions and instructions.

#### 1.8 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
  - 1. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. or more than 1 case, as appropriate, of each material and color applied.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.



- B. Manufacturers Names: The following manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses:
1. The Sherwin-Williams Co. (SW)
  2. PPG Paints (PPG)
  3. Benjamin Moore & Co. (Moore)

## 2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect from the submitted approved manufacturer's complete set of available colors. Use 'Monochromatic Gray tinted primer' per manufacturer's recommendation for base coat of Deep and Ultra Deep colors.
- D. Areas to receive accent colors to be designated by Architect. Verify quantity of colors and location using the finish legend, finish plans, room schedule and elevations.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. Reinstall items when

painting is completed. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.

- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning. Use appropriate cleaners or solvents recommended by the paint and coatings manufacturer.
  - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
  
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  - 1. Provide barrier or tie coats over incompatible primers or remove and reprime.
  - 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Form release agents on tilt up panels can be removed by recommended cleaners and pressurized water if recommended by manufacturer. Prepare surface per manufacturer's recommendations.
  - 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
    - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
  - 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods. These can be referred to as Passivator Coatings. Conduct a "Copper Sulfate" or other recommended method to see if Passivator Coatings are present. These MUST be removed to promote proper adhesion of primers and or finish coats.
  
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
  - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using. Mechanically mix (drill mix) ALL dual component products as per manufacturers recommendations.
  - 3. Use only thinners approved by paint manufacturer and only within recommended limits.

## 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
  7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
  9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions sand between applications.
  2. Omit primer on metal surfaces that have been shop primed and touchup painted unless a FULL PRIME COAT is specified.
  3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of Polyester, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with Spray tip orifice size as recommended by the manufacturer for the material and texture required. ONLY use electric spray equipment indoors or in confined areas due to Carbon Monoxide and indoor air quality.

- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness (DFT) of the entire system as recommended by the manufacturer.
  - E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.
  - F. Exposed mechanical items to be painted include, but are not limited to, the following:
    - 1. Pipe hangers and supports.
    - 2. Heat exchangers.
    - 3. Tanks that do not have factory-applied final finishes.
    - 4. Ductwork.
    - 5. Insulation.
    - 6. Motors and mechanical equipment
    - 7. Accessory items.
  - G. Exposed electrical items to be painted include, but are not limited to, the following:
    - 1. Conduit, piping and fittings.
    - 2. Switchgear (Not already pre-finished).
    - 3. Panelboards (Not already pre-finished).
  - H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled. Surface must be a minimum of 95% Pinhole free
  - I. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing. Use gray tinted primer per manufacturer for base coat with saturated interior paint color selections.
  - J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
  - K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
    - 1. Provide satin finish for final coats or otherwise specified.
  - L. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
  - M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- 3.4 CLEANING
- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site. Do not dispose of paints and solvents in liquid or solid form on any on site trash containers or dumpsters.

## 3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

## 3.6 EXTERIOR PAINT SCHEDULE

- A. Concrete, Stucco, and Masonry (Other than Concrete Masonry Units): Provide the following finish systems over exterior concrete, stucco, and brick masonry surfaces:
  - 1. Flat Acrylic Finish: 2 finish coats over a primer.
    - a. Primer: Alkali-resistant, exterior, acrylic-latex primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Loxon Concrete & Masonry Primer/Sealer, LX02W50.
      - 2) PPG: 4-603 PPG PermaCrete Alkali Resistant Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Primer/Sealer 609.
    - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100® Exterior Latex Flat, A6 Series
      - 2) PPG: 6-610XI Series Speedhide Flat Acrylic Latex Exterior Paint
      - 3) Benjamin Moore: Ultra Spec EXT Ext Flat HP N447.
- B. Concrete Masonry Units: (For non-intragal colored block) Provide the following finish systems over exterior concrete masonry units:
  - 1. Flat Acrylic Finish: 2 finish coats over a block filler.
    - a. Block Filler: High-performance, latex block filler applied at spreading rate recommended by the manufacturer to achieve a total dry mill thickness of not less than 7.0 mils DFT.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100 Exterior Latex Satin, A6 Series.
      - 2) PPG: 6-610XI Series Speedhide Flat Acrylic Latex Exterior.
      - 3) Benjamin Moore: Ultra Spec EXT Exterior Satin HP N447.
- C. Exterior Gypsum Soffit Board: Provide the following finish systems over exterior gypsum soffit board:
  - 1. Flat Acrylic Finish: 2 finish coats over an exterior latex alkali-resistant primer, as recommended by the manufacturer.

- a. Primer: Exterior, alkyd- or alkali-resistant, acrylic-latex primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
    - 1) SW: Multi-Purpose Int/Ext Latex Primer, B51-450.
    - 2) PPG: 4-603 PPG PermaCrete Alkali Resistant Primer Sealer.
    - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Primer/Sealer 609.
  - b. First and Second Coats: Flat, exterior, acrylic-emulsion paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
    - 1) SW: A-100® Exterior Latex Flat, A6 Series.
    - 2) PPG: 6-610XI Speedhide Flat Acrylic Latex Exterior.
    - 3) Benjamin Moore: Ultra Spec EXT Exterior Flat HP N447.
- D. Wood Surfaces and Trim: Provide the following finish systems over smooth wood siding, plywood and other exterior wood surfaces and exterior trim: (Note: If there are existing wood surfaces that are to be painted that have an alkyd-based finish, prep surface per manufacturer's instructions before applying new finish.)
1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Exterior, alkyd or latex, wood primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Exterior Oil-Based Wood Primer, Y24W8020.
      - 2) PPG: 17-921 Seal Grip Interior Exterior 100% Acrylic Universal Primer.
      - 3) Benjamin Moore: Benjamin Moore® Multi-Purpose Primer (067)
    - b. First and Second Coats: Semigloss, waterborne, exterior, acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
      - 1) SW: A-100 Exterior Latex Satin, A82 Series
      - 2) PPG: 6-900XI Speedhide Exterior Semi-Gloss Acrylic Latex.
      - 3) Benjamin Moore Ultra Spec EXT Gloss N449.
- E. Wood Shakes and Rough Siding and Stained Wood: Provide the following finish systems over exterior wood shakes and rough wood siding and stained wood:
1. Flat Acrylic Finish: 2 coats of an acrylic-latex stain.
    - a. First and Second Coats: Solid-color, exterior, acrylic-latex, wood stain applied at spreading rate recommended by the manufacturer.
      - 1) SW: Superdeck Solid Color Acrylic Stain.
      - 2) PPG: FLD820 Flood Solid Color 100% Acrylic Stain.
      - 3) Benjamin Moore: ARBORCOAT® Waterborne Ultra Flat Solid Stain (610)
- F. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items unless a barrier or tie coat is required.
1. Full-Gloss, Alkyd-Enamel Finish: 2 finish coats over a rust-inhibitive primer.
    - a. Primer: Rust-inhibitive metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.3 mils.
      - 1) SW: Kem Kromik Universal Primer B50WZ1
      - 2) PPG: 4160 MultiPrime Rust Inhibitive Metal Primers.
      - 3) Benjamin Moore: Corotech V131 Universal Metal Primer.

- b. First and Second Coats (DTM Acrylic Finish): Full-gloss, exterior High Performance Acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils.
  - 1) SW: Pro Industrial DTM Acrylic Gloss B66W100 Series.
  - 2) PPG: 4216 HP Pitt Tech Int/Ext DTM Acrylic Industrial Gloss Enamel.
  - 3) Benjamin Moore: Ultra Spec HP D.T.M. Acrylic Gloss (HP28).
- G. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated (galvanized) metal surfaces:
  - 1. Full-Gloss, Acrylic-Enamel Finish: 2 finish coats over a galvanized metal primer.
    - a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 4020 Pitt Tech Plus WB Metal Primer- Finish
      - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer Hp04.
    - b. First and Second Coats (DTM Acrylic Finish): Full-gloss, exterior Acrylic enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3.0 mils.
      - 1) SW: Pro Industrial DTM Acrylic Gloss B66-1050 Series.
      - 2) PPG: 4216 HP Pitt Tech Int/Ext DTM Acrylic Industrial Gloss Enamel.
      - 3) Benjamin Moore: Ultra Spec HP D.T.M. Acrylic Gloss (HP28).

### 3.7 INTERIOR PAINT SCHEDULE

- A. Concrete and Masonry and Concrete Masonry units. Provide the following paint systems over interior concrete and masonry surfaces: (Note: If there are existing surfaces that are to be painted that have an alkyd-based finish, prep surface per manufacturer's instructions before applying new finish.)
  - 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a primer or block filler.
    - a. Primer (no-masonry units): Alkali-resistant, acrylic-latex, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.0 mils.
      - 1) SW: Loxon Concrete & Masonry Primer/Sealer, LX02W50.
      - 2) PPG: 4-603 PPG Perma Crete Acrylic Latex Alkali Resistant Primer.
      - 3) Benjamin Moore: Ultra Spec Acrylic Masonry Primer/Sealer 608.
    - b. Block Filler (for masonry units only): High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - c. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      - 1) SW: ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series.
      - 2) PPG: 6-4510XI Speedhide Zero VOC Latex Semi-Gloss.
      - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (N539)

2. Two Component, Epoxy Coating with Gloss Finish: 2 finish coats over a block filler. **(See drawings or finish schedule for locations noted "epoxy paint")**
    - a. Block Filler: High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      - 1) SW: Pro Industrial Heavy Duty Block Filler, B42W150.
      - 2) PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      - 3) Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler or Corotech V155 100% Solids Epoxy Pre-Primer Semi-Gloss
    - b. First and Second Coats: Gloss, epoxy emulsion.
      - 1) SW: Waterbased Catalyzed Epoxy B70-200/B60V15.
      - 2) PPG: 98-1 Aquapon Waterbased Gloss Epoxy Coating
      - 3) Benjamin Moore: Corotech Waterborne Acrylic Epoxy Gloss (V450).
  3. Single Component Pre- Catalyzed Epoxy Gloss Coating: 2 finish coats over a block filler. **(See drawings or finish schedule for locations noted "epoxy paint")**
    - c. Block Filler: High-performance, latex-based, block filler applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7.0 mils.
      1. SW: Pro Industrial Heavy Duty Block Filler B42W150
      2. PPG: 6-7 Speedhide Masonry Latex Hi-Fill Block Filler.
      3. Benjamin Moore: Ultra Spec Hi-Build Masonry Block Filler Flat (571)
    - d. First & Second Coats: Pre-Catalyzed WB Epoxy Coating applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0mils.
      1. SW: Pro Industrial Pre-Catalyzed WB Epoxy Semi-Gloss, K46 Series.
      2. PPG: 16-551 Pitt Glaze Pre- Catalyzed WB Gloss Epoxy Coating
      3. Benjamin Moore: V341 Corotech Pre- Catalyzed WB Semi- Gloss Epoxy
- B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
1. Acrylic-Enamel Finish:(for walls) 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Interior Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
    - b. First and Second Coats: Low-Sheen (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Eg-Shel, B20-2600 Series.
      - 2) PPG: 6-4310XI Speedhide Zero "0" VOC Latex Eggshell.
      - 3) Benjamin Moore: Ultra Spec 500 Eggshell (T538).
  2. Flat Acrylic Finish:(for ceilings and soffits) 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).



- b. First and Second Coats: Low-Sheen (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
  - 1) SW: ProMar 200 Zero VOC Flat, B30-2600 Series.
  - 2) PPG: 6-4110XI Speedhide Zero VOC Latex Flat Enamel.
  - 3) Benjamin Moore: Ultra Spec 500 Interior Eggshell Finish (T538).
3. Two Component Epoxy Semigloss Coating: 2 finish coats over a block filler or primer. **(See drawings or finish schedule for locations noted "epoxy paint".)**
  - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
    - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
    - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
    - 3) Moore: Ultra Spec 500 Primer (534).
  - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
    - 1) SW: Waterbased Catalyzed Epoxy Semi-Gloss B70/B60V25.
    - 2) PPG: 98-1 Aquapon Waterbased Semi- Gloss Epoxy Coating
    - 3) Benjamin Moore: Corotech Waterborne Acrylic Epoxy Gloss (V450).
4. Single Component Pre-Catalyzed Epoxy Coating: 2 finish coats over a Gypsum Board primer. **(See drawings or finish schedule for locations noted "epoxy paint".)**
  - a. Primer: Latex-based, interior primer applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0 mils.
    - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
    - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
    - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
  - b. First and Second Coats: Pre-Catalyzed Epoxy Coating applied at a spread rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.0 mils.
    - 1) SW: Pro Industrial Pre-Catalyzed WB Epoxy Coating K46
    - 2) PPG: 16-551 Pitt-Tech Pre-Catalyzed WB Epoxy Coating
    - 3) Benjamin Moore: Corotech Pre-Catalyzed WB Epoxy Coating V341
- C. Woodwork and Hardboard: Provide the following paint finish systems over new, interior wood surfaces:
  1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a wood undercoater.
    - a. Undercoat: Acrylic-latex-based, interior wood under coater, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: ProMar 200 Zero VOC Primer, B28W2600.
      - 2) PPG: 6-4900XI Speedhide Zero VOC Latex Primer Sealer.
      - 3) Benjamin Moore: Ultra Spec 500 Primer (534).
    - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.6 mils.
      - 1) SW: ProMar 200 Zero VOC Semi-Gloss, B31-2600 Series.
      - 2) PPG: 6-4510XI Speedhide Zero VOC Latex Semi-Gloss.
      - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (N539).

2. Semigloss, Waterbased-Alkyd-Enamel Finish: 2 finish coats over a primer. **(Note: Use only when painting existing alkyd-based woodwork or matching existing woodwork.)**
  - a. Primer: Odorless Alkyd or latex-based, interior enamel undercoater applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
    - 1) SW: ProBlock Interior Oil-Based Primer, B79W8810.
    - 2) PPG: 17-921 Seal Grip Acrylic Universal Primer.
    - 3) Benjamin Moore: Fresh Start Undercoater & Primer/Sealer (032).
  - b. First and Second Coats: Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
    - 1) SW: ProMar 200 Acrylic-Alkyd Semi-Gloss, B34W8200.
    - 2) PPG: 6-1510 Speedhide Interior Exterior WB Alkyd Semi Gloss.
    - 3) Benjamin Moore: Advance WB Alkyd Semi-Gloss 793.
- D. Stained and Natural-Finish Woodwork: Provide the following stained finishes over new, interior woodwork: To Match color of D-1. See sheet A700
  1. Alkyd-Based, Satin-Varnish Finish: 2 finish coats of an alkyd-based, clear-satin varnish over a sealer coat and an alkyd-based, interior wood stain. Wipe wood filler before applying stain.
    - a. Filler Coat: Paste-wood filler applied at spreading rate recommended by the manufacturer. **(Provide for wide grained woods such as oak only. Provide color putty or filler to match stain if dark color stain is selected by Architect.)**
    - b. Stain Coat **(Do not use if natural-finish noted in drawings or finish schedule):** Alkyd-based, interior wood stain applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Tintable Wood Stain.
      - 2) PPG: DFT400 Series Deft Interior Oil Based Wood Stain.
      - 3) Benjamin Moore: Lenmar Waterborne Interior Wiping Wood Stain 1AS.12XX series.
    - c. Sealer Coat: Clear sanding sealer applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Sanding Sealer.
      - 2) PPG: DFT157 Deft Interior Water Based Gloss Polyurethane (thin 10%).
      - 3) Benjamin Moore: 413 Benwood Alkyd Quick Dry Sanding Sealer.
    - d. First and Second Finish Coats: Alkyd-based or polyurethane varnish, as recommended by the manufacturer, applied at spreading rate recommended by the manufacturer.
      - 1) SW: Minwax Performance Series Fast Dry Varnish Satin.
      - 2) PPG: DFT157 Deft Interior Water Based Satin Polyurethane.
      - 3) Benjamin Moore: 423 Benwood Stays Clear Acrylic Polyurethane Low Luster Finish.
  - E. Ferrous Metal: Provide the following finish systems over ferrous metal:
    1. Semigloss, Acrylic -Enamel Finish: One finish coat over an enamel undercoater and a primer.

- a. Primer: Quick-drying, rust-inhibitive, Acrylic or Waterbased epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 -4.0 mils.
    - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
    - 2) PPG: 4020PF Pitt Tech WB Metal Primer- Finish
    - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer HP04.
  - b. Finish Coat: Odorless, semigloss, alkyd, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.4 mils.
    - 1) SW: ProMar 200 Acrylic-Alkyd Semi-Gloss, B34W8200.
    - 2) PPG: 6-1510 Speedhide Interior Exterior WB Alkyd Semi Gloss.
    - 3) Benjamin Moore: Ultra Spec 500 Semi-Gloss (T546).
- F. Zinc-Coated Metal: Provide the following finish systems over zinc-coated metal:
1. Eg-Shel or Satin, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 90-712 Series Pitt-Tech Acrylic Primer/Finish.
      - 3) Benjamin Moore: Ultra Spec Hp® Acrylic Metal Primer HP04.
    - b. First and Second Coats: Low- Sheen (eg-shel or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 2.8 mils.
      - 1) SW: ProMar 200 Zero VOC Eg-Shel, B20-2600 Series.
      - 2) PPG: 6-4310XI Speedhide Zero “0” VOC Latex Eggshell.
      - 3) Benjamin Moore: Ultra Spec 500 Eggshell (N538).
- G. Exposed Metal Structure:( If Applicable) (Galvanized Metal Decking), structural beams, braces, columns, bar joists and miscellaneous ductwork.: Provide the following finish systems over these substrates. **NOTE: Check for Passivator Coatings on substrates. Conduct a Copper Sulfate or recommended test. If protective coating or film is present it must be removed entirely prior to application of primers and or finish coats. Consult paint manufacturer for recommendations.**
1. Flat, Eg-Shel or Semi-Gloss Dryfall Coating: 1-2 finish coats over a primer.
    - a. Primer: IF NEEDED: Galvanized metal primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.2 mils.
      - 1) SW: Pro Industrial Pro-Cryl Universal Primer, B66-1300.
      - 2) PPG: 90-712 Series Pitt-Tech Acrylic Primer/Finish.
      - 3) Moore: Ultra Spec Hp Acrylic Metal Primer Hp04
    - b. First and Second Coats: Flat, Eggshell or Semi-Gloss Interior Latex Dryfall Coatings applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 1.5 mils.
      - 1) SW: Pro Industrial Waterborne Dryfall B42 Series
      - 2) PPG: 6-724xi Super Tech Waterborne Dryfall Coatings
      - 3) Benjamin Moore: Latex Dryfall - Flat 395

END OF SECTION 09 91 00



# Division 10 - Specialties



## SECTION 10 11 00 – VISUAL DISPLAY SURFACES

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the marker boards and tack boards.

#### 1.2 SUBMITTALS:

- A. Prior to fabrication, submit to the Architect for review the following:
  - 1. Complete and fully descriptive manufacturer's literature which shall include the manufacturer's currently recommended installation methods.
  - 2. Shop drawings showing complete dimensions, details, and layouts.
  - 3. Physical sample of all colors available for the Architect's selection.
- B. As a condition precedent to the final acceptance, furnish a manufacturer's certificate stating that the work installed under this Section has been fabricated and installed in all respects in compliance with the Contract Documents.

### PART 2 - PRODUCTS

#### 2.1 MARKERBOARD: (MB)

- A. (MB-1) Whiteboard Wet Markerboard: Porcelain Steel Whiteboard within the demountable wall system. See A101 & A701 First Floor Finish Plan and 2-6/A701 Demountable wall type 2A-2E elevations for locations and sizes.
- B. Acceptable manufacturers subject to compliance with this specification and the specifications of the product listed above are:
  - 1. Basis of design: Claridge Products and Equipment, Inc.
  - 2. Marsh Industries, Inc
  - 3. Platinum Visual Systems Inc.
  - 4. ASI Visual Display Products
- C. Sizes: Standard height 4'-0" high unless otherwise noted. See drawings for widths or if not indicated 8' long.
- D. Trim: Aluminum with marker tray and tack strip at top.
- E. Color: White, see A700 Interior Finish Legend. For substitutions submit all colors for Architect to select. Finish as selected by Architect
- F. Coordinate exact locations with Owner and Architect. Reference A101 and A701.

#### 2.3 TACKBOARD: (TB)

- A. (TB-1) Tackboard within the demountable wall system. See A701 First Floor Finish Plan and 2-6/A701 Demountable wall type 2A-2E elevations for locations and sizes. Cork, vinyl or fabric colors as selected by Architect.
  - B. (TB-2) Natural Cork Tackboard with Aluminum Trim as manufactured by:
    - 1. Basis of Design: Claridge Products and Equipment, Inc.
  - C. Acceptable manufacturers subject to compliance with this specification and the specifications of the product listed above are:
    - 1. MooreCo/Vanerum North America
    - 2. Marsh Industries, Inc
    - 3. Platinum Visual Systems, Inc.
    - 4. ASI Visual Display Products
  - D. Trim: Aluminum.
  - E. Sizes: Standard height 4'-0" high unless otherwise noted. See drawings for widths, or if not indicated, 8' long.
  - F. Cork, vinyl or fabric colors as selected by Architect. See A700 Interior Finish Legend for color designation
  - G. Coordinate exact locations with Designer.
- 2.4 OTHER MATERIALS:
- A. All other materials, not specifically described but required for a complete and proper installation of the boards and the tackboard, shall be as selected by the Contractor subject to the approval of the Architect.

### PART 3 – EXECUTION

#### 3.1 GENERAL:

- A. Materials shall be installed in accordance with the Contract Documents, approved shop drawings, and manufacturer's instructions. It is the intention of this Specification to provide materials manufactured and installed in such a manner as to be rigidly anchored to assure a permanent installation.

#### 3.2 INSTALLATION:

- A. Install all the chalkboards and tack boards where indicated on the Drawings and as indicated on the approved submittals, anchoring all components firmly in place for long life under hard use and in complete accordance with the manufacturer's recommendations.

#### 3.3 INSPECTION AND ADJUSTMENT:

- A. Upon completion of the installation, and as a condition of its acceptance, visually inspect the entire work of this Section, adjust all components for proper operation and straight alignment, and touch-up all scratches and abrasions to be completely invisible.

END OF SECTION 10 11 00



## SECTION 10 14 00 - SIGNAGE

### PART 1 - GENERAL

#### 1.01 SUMMARY:

- A. This section includes the following types of signs:
  - 1. Interior plaques.
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. See Drawings for labels, tags, and nameplates for plumbing, mechanical, and electrical equipment.

#### 1.02 SUBMITTALS:

- A. General:
  - 1. Submit the following according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data:
  - 1. Product data for each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- C. Samples: Provide the following samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.
- D. Color Charts: Manufacturer's color charts consisting of actual sections of material including the full range of colors available for each material required.
- E. Samples of Interior Plaques: Two actual-sized samples of interior plaques showing compliance with requirements.

#### 1.03 QUALITY ASSURANCE:

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.
- C. Design Concept: The drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Sign units by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS:

- A. Subject to compliance with requirements, provide products by one of the following:
  - 1. Manufacturers of Interior Plaques:
    - a. Andco Industries Corp.
    - b. ASI Sign Systems, Inc.
    - c. Leeds Architectural Letters, Inc.
    - d. SignArt
    - e. Best Sign Systems
    - f. Or approved equal

#### 2.02 MATERIALS:

- A. Cast Acrylic Sheet: Provide cast (not extruded or continuous cast) methyl methacrylate monomer plastic sheet, in sizes and thick nesses indicated, with a minimal flexural strength of 16,000psi when tested according to ASTM D 790, with a minimum allowable continuous service temperature of 176 deg F.
- B. Aluminum Sheet: Provide aluminum sheet of alloy and temper recommended by the sign manufacturer for the type of use and finish indicated, and with not less than the strength and durability properties specified in ASTM B 209 for 5005-H15.
- C. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to the sign material and mounting surface.
- D. Anchors and Inserts: Use nonferrous metal or hot-dipped galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into masonry work.
- E. Colored Coatings for Acrylic Plastic Sheet: Use colored coatings, including inks and paints for copy and background colors, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are nonfading for the application intended.

#### 2.03 FINISHES:

- A. Baked-Enamel Finish: AA-M4xC12C42R1x (Mechanical Finish: Manufacturer's standard, other nondirectional textured; Chemical Finish: Chemical conversion coating, acid chromate-fluoride-phosphate pretreatment; Organic Coating: as specified below). Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, and painting.
  - 1. Organic Coating: Thermosetting-modified acrylic enamel primer/topcoat system complying with AAMA 603.8 except with a minimum dry film thickness of 1.5 mils, medium gloss.
    - a. Color: Selected from manufacturer's full range of colors.

#### 2.04 INTERIOR PLAQUES(ROOM IDENTIFICATION SIGNS): TYPE (IRS) and (ICRS)

- A. Interior Plaques: shall be a modular type signage system. Signs shall be fabricated of acrylic and be ADA compliant.
  - 1. Material: Factory-painted matte finish acrylic plastic laminated to acrylic back, signs to be 6"x6", restroom signs to be 6"x9", and in case of fire signs to be 6"x9"; square corners.
- B. Mounting: 1/16 inch-thick double-sided vinyl foam tape or as recommended by manufacturer.
  - 1. Height: Signs shall be mounted 60" A.F.F. to the centerline of the sign unless noted otherwise in the specifications or drawings.

2. Where a sign is mounted on a glass sidelite, conceal the mounting tape by applying a blank sign of matching material and size to the opposite side of the glass.
- C. Tactile Graphics: Signage shall be tactile (Perceptible to touch); comply with ANSI A117.1, paragraph 4.28. Letters, numbers, and pictograms on tactile signs shall be raised 1/32 inch minimum. Tactile letters and numbers shall be Helvetica Regular and 5/8 inch high. Raised characters and symbols shall be accompanied by Grade 11 Braille. The Contractor shall be responsible for the translations into Braille. Letters shall contrast with their background.
1. Graphics Application: Signage graphics shall be relieved 1/32 inch minimum from plaque first surface by photomechanical stratification process. Cut and adhered graphics will not be acceptable.
- D. Messages:
1. IRS should be permanent message as noted in schedule below.
  2. ICRS should have permanent message and a slot for changeable message with clear acrylic lens to protect message (owner shall be able to print office name and insert into slot)
  3. All messages to be verified with Owner for each location, see schedule below.

#### 2.05 SIGNAGE SCHEDULE:

- A. Signage Schedule: Provide the following signs; verify wording with Owner prior to fabrication. "XXX" denotes room number to be verified with owner, for submittal purposes use room numbers on plans.

Location	Sign Type	Quantity	Verbiage
2 <sup>ND</sup> Floor Door at Stair 1	IRS	1	"XXX STAIR 1"
Door 200	IRS	1	"XXX CONFERENCE ROOM"
Door 202EX	IRS	1	"ENGINEERING DEPARTMENT"
Door 203	ICRS	1	"XXX OFFICE" – Include changeable message
Door 204	ICRS	1	"XXX OFFICE" – Include changeable message
Door 205	ICRS	1	"XXX OFFICE" – Include changeable message
Door 206	ICRS	1	"XXX OFFICE" – Include changeable message
Door 207	ICRS	1	"XXX OFFICE" – Include changeable message
Door 208	ICRS	1	"XXX OFFICE" – Include changeable message
Door 209	ICRS	1	"XXX OFFICE" – Include changeable message
Door 210	ICRS	1	"XXX OFFICE" – Include changeable message
Door 211	ICRS	1	"XXX OFFICE" – Include changeable message
Door 212A EX	IRS	1	"ENGINEERING DEPARTMENT"
Door 212B EX	IRS	1	"ENGINEERING DEPARTMENT"
Door 213	IRS	1	"XXX STORAGE"
Door 214	IRS	1	"XXX IT / SERVER ROOM"
Door 215	IRS	1	"XXX WORKROOM"
Door 216	IRS	1	"XXX BREAK ROOM"

Door 217 EX	IRS	1	“XXX STAIR 2”
Door 222 EX	IRS	1	“XXX OPEN OFFICE”
Door 223	ICRS	1	“XXX OFFICE” – Include changeable message
Door 224	IRS	1	“XXX STORAGE”
Door 225	ICRS	1	“XXX OFFICE” – Include changeable message
Door 226	ICRS	1	“XXX OFFICE” – Include changeable message
Door 227	ICRS	1	“XXX OFFICE” – Include changeable message
Door 228	IRS	1	“XXX MECHANICAL ROOM”
Door 229	IRS	1	“XXX MECHANICAL ROOM”
Door 230	IRS	1	“XXX MECHANICAL ROOM”

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. General: Locate signs where indicated, using mounting methods of the type described and in compliance with the manufacturer’s instructions.
1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
- B. Interior Plaques: Attach panel signs to wall surfaces using the methods indicated below:
1. Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces.
  2. Concealed Mounting: Mount the plaques by inserting threaded studs into tapped lugs on the back of the plaque. Set in predrilled holes filled with quick-setting cement.
  3. Cement Mounting: Mount plaques using exposed fasteners with rosettes attached through the face of the plaque into the wall surface.

#### 3.02 CLEANING AND PROTECTION:

- A. After installation, clean soiled sign surfaces according to the manufacturer’s instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 10 14 00

## SECTION 10 21 13 - TOILET COMPARTMENTS – SOLID PLASTIC

### PART 1 - GENERAL

#### 1.1 SUMMARY:

- A. This Section includes toilet compartments as follows:
  - 1. Type:(HDPE) High Density Polyethylene.
  - 2. Compartment Style: Overhead braced and floor anchored.
- B. Related Sections include the following: Section 10 28 13 “Toilet Accessories” for toilet paper holders, grab bars, purse shelves, and similar accessories.
- C. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUBMITTALS:

- A. Product Data: For each type and style of toilet compartments specified. Include details of construction relative to materials, dimensions of individual components, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- B. Shop Drawings: For fabrication and installation of toilet compartment assemblies. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.
- C. Samples for Verification:
  - 1. Submit 6” square samples of each color and finish on same substrate used in work, for color verification after selections have been made.
  - 2. Submit one (1) sample of the following:
    - a. Hardware (Complete)
    - b. Stainless Steel Mounting Bracket
    - c. Stainless Steel Hinges
- D. Maintenance Instructions: Provide manufacturer’s printed instructions for Maintenance of installed Work.
- E. Product Schedule: For toilet compartments, prepared by or under the supervision of supplier, detailing location and selected colors for toilet compartment material.

#### 1.3 PROJECT CONDITIONS:

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.4 INFORMATIONAL SUBMITTALS

## A. Certificates:

1. Product Certificates: For each type of toilet compartment by manufacturer.

## 1.5 CLOSEOUT SUBMITTALS

- A. Maintenance data. For toilet compartments to include maintenance manuals.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class B, 26-75.
2. Smoke-Developed Index: 450 or less.
3. Material Fire Ratings: Passes National Fire Protection Association (NFPA) 286.

2. Regulatory Requirements: Comply with applicable provisions in the U.S. Department of Justice "2010 ADA Standards for Accessible Design" and ICC A117.1 for toilet compartments designated as accessible.

## 2.2 SOLID-PLASTIC TOILET COMPARTMENTS: (TP)

- A. Provide: Overhead braced & floor anchored, Class B.

- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Basis of Design: Scranton Products, Hiney Hiders
2. ASI Global Partitions (Eastanollee, GA 30538)
3. General Partitions (Erie, PA 16505-4243)

- C. Provide a 25-year product warranty.

## 2.3 MATERIALS:

- A. General: Provide material which has been selected for surface flatness and smoothness. Exposed surfaces which exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are not acceptable.

- B. Material shall be Solid High Density Polyethylene (HDPE) and shall have homogenous color throughout entire thickness. HDPE shall be waterproof, non-absorbent and shall have a self-lubricating surface to resist marks from pens, pencils and other writing instruments. Doors and Panels shall have a finished height of 55.0". All edges shall have a .250" radius.

1. Doors – Minimum 1.00" (25 mm) Finished Thickness

2. Divider Panels – Minimum 1.00” (25 mm) Finished Thickness
  3. Pilasters – Minimum 1.00” (25 mm) Finished Thickness
- C. (TP-1) Color/Finish: Charcoal Grey/Orange Peel. Reference Interior Finish Legend on A700.
- D. Pilaster Shoes: Select one of the following:
1. ASTM A 167, Type 304 Stainless Steel, minimum 3” high, 18 gauge, #4 finished, attached with Stainless Steel Through Bolts.
- E. Brackets: All Brackets shall be made of Cast-Stainless Steel. Inside of opening of Bracket shall be 1.00” for panels and pilasters. All holes for mounting to wall and panel/pilaster shall be pre-drilled. Each Bracket is to have a minimum wall thickness of .125”. The stock number shall be molded into the back of each bracket for ease in identification. Each Bracket is to be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Urinal screen brackets to be continuous type.
- F. Hinge: 11 Gauge Stainless Steel Hinge. Hinge shall be made of Type 302/304 Stainless Steel and shall have a Satin finish. Hinge shall be gravity type for self-closing action and shall be fully adjustable up to 360 degrees. Pivot pin shall be made of Type 302/304 Stainless Steel. Hinges shall provide emergency access by lifting the door. Hinges shall be pre-drilled for mounting to door and pilaster with Stainless Steel Through-Bolts. Each Hinge is to be packaged in a separate carton, and is to be labeled by stock number, manufacturer, and left or right hand.
- G. Strike and Keeper: Heavy Duty Stainless Steel with a Satin finish. The Strike and Keeper shall be 2.50” high, with the mounting holes at 1.50” O.C., and the wall thickness shall be a minimum of .125”. The Strike and Keeper shall have an integral rubber bumper door stop. The stock number shall be molded into the back of the Strike and Keeper for ease in identification. Each Strike and Keeper shall be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Furnish one per door.
- H. Slide Latch: Heavy Duty Stainless Steel with a Satin finish. The Slide Latch shall be surface mounted. The slide bar shall be .150” thick, 1.020” wide and 3.720” long. Latch shall have an internal Stainless Steel buffering spring to prevent damage when door is inadvertently slammed against the Latch. Mounting holes are to be spaced at 3.50” O.C. Latch knob is to be riveted to the slide bar and then welded to insure that the knob will not come off. The stock number is to be molded into the back of the Slide Latch for ease in identification. Each Slide Latch shall be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Furnish one per door.
- I. Coat Hook: Coat Hook and Bumper shall be 2.340” high, 1.230” wide and shall protrude out from the door 3.05”. The hook portion shall have a finished diameter of .250”. The stock number shall be molded into the back of the Coat Hook and Bumper for ease in identification. Each Coat Hook and Bumper shall be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Furnish one per door.
- J. Door Stop: Door Stop shall have a 2.125” base diameter and shall protrude 1.80” from the wall. The bumper at the end of the Door Stop shall be .250” thick. The diameter of the shaft shall be .6875”. The stock number shall be molded into the back of the Door Stop for ease in identification. Each Door Stop shall be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Furnish one for each Disabled Accessible door.
- K. Pull Handle: Heavy Duty Stainless Steel with a Satin finish. Plated Zamac Door Pulls are unacceptable. Pull Handle shall protrude from the face of the door .940” and shall be 4.735” long. The Pull Handle shall have mounting holes drilled and tapped for 10/24 threads at 3.50” O.C. The

Pull Handle shall be .655" wide and shall be mounted back to back with the Slide Latch. The stock number shall be molded into the back of the Pull Handle for ease in identification. Each Pull Handle shall be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer. Furnish one for each Disabled Accessible door.

- L. Overhead Bracing (Headrail): Continuous Heavy Duty Extruded 6063-T5 Aluminum Headrail with Anti-Grip profile. Headrail shall have integral reinforcing channel and curtain track. Headrail shall have a Satin Anodized finish. Provide Headrail Corner Brackets, Wall Brackets, and Headrail End Caps as required. The Headrail and Headrail Brackets shall have a minimum wall height of 2". The minimum wall thickness of the Headrail and Headrail Brackets shall be .125". Each Headrail Bracket is to be packaged in a separate poly bag, and is to be labeled by stock number and manufacturer.
- M. Anchorages and Fasteners: All Fasteners shall be Stainless Steel with theft proof heads, Through-Bolted unless noted otherwise. No chrome plated steel or brass will be acceptable.

## 2.5 FABRICATION:

- A. General: Provide standard doors, panels, screens and pilasters fabricated for partition system, complete with all accessories and hardware listed above and as required for installation of fully functional system, unless otherwise noted. Provide units with cutouts and drilled holes to receive partition-mounted hardware, accessories, and grab bars as indicated.
- B. Overhead-Braced and Floor-Anchored Partitions:
  - 1. Make provision for setting and securing continuous Extruded Aluminum Anti-Grip Headrail at top of each pilaster.
  - 2. Furnish Stainless Steel Shoe at each pilaster to conceal supports and leveling mechanism.
- C. Doors: Unless otherwise indicated, provide 24" (610 mm) wide in-swinging doors for standard Toilet Partitions and 36" (914 mm) wide out-swinging doors with a minimum 32" (813 mm) wide clear opening for Partitions indicated to be Handicapped Accessible.
- D. Floor Anchored Privacy Screens: Furnish Privacy Screens consisting of a pilaster and a panel of the same construction and finish as the Toilet Partitions. Furnish in accordance with the drawings.

## PART 3 - EXECUTION

### 3.1 INSTALLATION:

- A. General: Comply with manufacturer's written installation instructions. Install Partitions rigid, straight, plumb, and level. Provide clearances of not more than .50" (13 mm) between pilasters and panels, and not more than 1.0" (25 mm) between panels and walls. No evidence of drilling, cutting and patching shall be visible in finished work.
- B. Overhead-Braced and Floor-Anchored Partitions: Secure pilasters to floor and level, plumb, and tighten. Secure continuous Headrail to each pilaster with not less than two (2) Through-Bolted Stainless Steel fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

### 3.2 ADJUSTING AND CLEANING:



- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation.
- B. Provide final protection and maintain conditions that ensure Toilet Partitions and Screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10 21 13



## SECTION 10 26 13 – CORNER GUARDS

### PART 1- GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Corner Guards.
- B. See Division 06 Section "General Carpentry" for blocking required for installing fasteners.

#### 1.2 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product data and detailed specifications for each system component and installation accessory required, including installation methods for each type of substrate.
- C. Shop drawings showing locations, extent and installation details of corner guards. Show methods of attachment to adjoining construction.
- D. Samples for verification purposes: Submit the following samples, as proposed for this work, for verification of guard.
  - 1. 12" long sample of each model specified.
  - 2. Physical Color sample showing full range of manufacturer's colors and finish options.
- E. Product test reports from a qualified independent testing laboratory showing compliance of each component with requirements indicated.
- F. Maintenance data for wall protection system components for inclusion in the operating and maintenance manuals specified in Division 1.

#### 1.3 QUALITY ASSURANCE

- A. Installer qualifications: Engage an installer who has no less than 3 years' experience in installation of systems similar in complexity to those required for this project.
- B. Manufacturer's qualifications: Not less than 5 years' experience in the production of specified products and a record of successful in-service performance
- C. Code compliance: Assemblies should conform to all applicable codes including IBC, UBC, SBCCI, BOCA and Life Safety.
- D. Fire performance characteristics: Provide wall protection system components with UL label indicating that they are identical to those tested in accordance with ASTM-E84 for Class A characteristics listed below:

1. Flame spread: 25 or less
  2. Smoke developed: 450 or less
- E. Impact Strength: Provide assembled wall protection units that have been tested in accordance with the applicable provisions of ASTM F476.
- F. Chemical and stain resistance: Provide wall protection system components with chemical and stain resistance in accordance with ASTM D-1308.
- G. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.
- 1.4 DELIVERY, STORAGE AND HANDLING
- A. Deliver materials to the project site in unopened original factory packaging clearly labeled to show manufacturer.
- B. Store materials in original, undamaged packaging in a cool, dry place out of direct sunlight and exposure to the elements. A minimum room temperature of 40°F (4°C) and a maximum of 100°F (38°C) should be maintained.
- C. Material must be stored flat.
- 1.5 PROJECT CONDITIONS
- A. Materials must be acclimated in an environment of 65°-75°F (18°-24°C) for at least 24 hours prior to beginning the installation.
- B. Installation areas must be enclosed and weatherproofed before installation commences.

## PART 2 -PRODUCTS

### 2.1 MANUFACTURERS (CG)

- A. Subject to compliance with requirements, provide the products specified in individual subparagraphs below as basis-of-design products or a comparable product by one of the following:
1. Basis-of-Design Product: Construction Specialties, Inc.; Acrovyn 4000 Corner Guard (CG-1) SM-20AN & (CG-2) SM-20MN
  2. Inpro
  3. Afco Brands
  4. Pawling Corporation
  5. Koroseal

### 2.2 MATERIALS

- A. Vinyl or Vinyl/Acrylic compound: Extruded material should be high impact plastic with shadow grain texture. Chemical and stain resistance should be per ASTM D-1308 standards as established by the manufacturer. Colors to be selected from one of manufacturer's standard color range.
- B. Retainers: recycled vinyl or vinyl/acrylic compound.
- C. Fasteners: All fasteners to be non-corrosive and compatible with retainers. All necessary fasteners to be supplied by the manufacturer.
- D. Adhesive: As recommended by protection product manufacturer.
  - 1. Adhesives shall have a VOCcontent of [70] g/L or less.
  - 2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

### 2.3 CORNER GUARDS (CG)

- A. (CG-1) – Basis of Design: Model VA-250N, Series 4000 - 90° surface mounted corner guard with 2 1/2" (63.4 mm) legs and 3/32" (2 mm) radiused cover. Select from one of Acrovyn solid colors simulated patterns.
- B. Provide 4'-0" height lengths unless indicated otherwise on the drawings

### 2.4 FABRICATION

- A. General: Fabricate corner guards to comply with requirements indicated for design, dimensions, detail, finish and member sizes.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
  - 1. Do not proceed until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.
- B. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer's installation instructions.

### 3.3 INSTALLATION

- A. Install the work of this section in strict accordance with the manufacturer's recommendations, using only approved mounting hardware, and locating all components firmly into position, level and plumb.
- B. Temperature at the time of installation must be between 65°-75°F (18°-24°C) and be maintained for at least 48 hours after the installation.
- C. Adjust installed end caps as necessary to ensure tight seams.

### 3.4 CLEANING

- A. General: Immediately upon completion of installation, clean vinyl covers and accessories in accordance with manufacturer's recommended cleaning method.
- B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

### 3.5 PROTECTION

- A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION 10 26 13

## SECTION 10 28 13 - TOILET ACCESSORIES

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the toilet accessories.

#### 1.2 SUBMITTALS:

- A. Prior to installation, submit to the Architect for review the following:
  - 1. Complete and fully descriptive manufacturer's literature, which shall include a picture of the product, product size, material type and gauge, finish, and installation detail.
  - 2. A complete list of all accessories proposed for use and the room (identified by room number and room name) and the number of accessories of each type installed in that particular area. Include rough-in drawings for recessed accessories and details of backing.

### PART 2 – PRODUCTS

#### 2.1 APPROVED MANUFACTURERS:

- A. Bradley Corporation  
Mt. Laurel, New Jersey

Bobrick Washroom Equipment  
Los Angeles, California

ASI American Specialties, Inc.  
Yonkers, NY

An approved equal submitted 10 days prior to bid.

- B. Note: The catalog numbers and descriptive names used are those of Bobrick Washroom Equipment unless otherwise noted and are for the purpose of convenience, identification, and establishing standards of quality for materials, construction, dimensions, etc.

#### 2.2 TOILET ACCESSORIES:

- A. See Toilet Accessory Schedule on Drawings.

#### 2.3 FASTENING:

- A. All items of toilet accessories shall be provided complete with all required fastening devices. All fastening devices shall harmonize, in finish, with the item being fastened.

### PART 3 – EXECUTION

3.1 INSTALLATION:

- A. Install all toilet accessory units in accordance with manufacturer's instructions, using fasteners, which are appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated.
- B. Grab bars: Finished installation of grab bars shall be capable of withstanding 250 lbs. of pressure.

3.2 ADJUST AND CLEAN:

- A. Adjust toilet accessories for proper operations and verify that mechanisms function smoothly.
- B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION 10 28 13



## SECTION 10 44 00 - FIRE EXTINGUISHERS AND CABINETS

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Provide all labor, materials, equipment and services required to furnish and install the fire extinguishers and cabinets.

#### 1.2 SUBMITTALS:

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.
  - 1. Fire Extinguishers: Include rating and classification.
  - 2. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style and panel style.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.

#### 1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
  - 1. Provide extinguishers listed and labeled by FM.

#### 1.4 COORDINATION:

- A. Coordinate size and type of cabinets to ensure that the type and capacity of fire extinguishers indicated can be accommodated.

### PART 2 - PRODUCTS

#### 2.1 FIRE EXTINGUISHERS AND CABINETS:

- A. Basis-of-Design Products: Subject to compliance with requirements, provide products by the manufacturer specified in the paragraph below as basis-of-design products or comparable products by one of the following manufacturers:

1. Potter Roemer Industries.
2. J. L. Industries, Inc.

B. Basis of Design: Larsen's Manufacturing Company, Architectural Series.

## 2.2 FIRE EXTINGUISHERS:

A. Type:

1. Multi-Purpose Areas: Dry Chemical Larsen's MP Series MP-10.
2. Kitchen Areas: Wet Chemical Class K Larsen's WC Series WC-6L.
3. Mechanical/Electrical Areas: DC Series Larsen's DC-10.

## 2.3 FIRE EXTINGUISHER CABINETS:

A. Type:

1. Provide Fire-Rated Cabinets where required: Listed and labeled to meet requirements of ASTM E 814 for fire-resistance rating of wall where installed in rated wall.
  - a. Semi-Recessed-Mounted: Larsen's FS 2409-R4
  - b. Surface Mounted: Larsen's 2409-SM.

B. Door Style: Larsen's Vertical Duo. Fire-rated with partial glass vision panel in door.

C. Cabinet shall be sized to accommodate extinguisher.

D. Finish: Baked enamel in color as selected by the Architect.

## PART 3 - EXECUTION

### 3.1 GENERAL:

- A. Examine walls and partitions for suitable framing depth and blocking where recessed and semi-recessed cabinets are to be installed.
- B. Examine fire extinguishers for proper charging and tagging.
  1. Remove and replace damaged, defective, or undercharged units.
- C. Comply with manufacturer's written instructions for installing fire-protection specialties.
- D. Install in locations and at mounting heights indicated or, if not indicated, at heights acceptable to authorities having jurisdiction and ADA Standards..
  1. Prepare recesses for cabinets as required by type and size of cabinet and trim style.
  2. Fasten mounting brackets to structure and cabinets, square and plumb.
  3. Fasten cabinets to structure, square and plumb.
- E. Provide final protection and maintain conditions that ensure that cabinets and doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10 44 00

# Division 12 - Furnishings



## SECTION 12 21 13 – HORIZONTAL ALUMINUM LOUVER BLINDS

### PART 1 – GENERAL

#### 1.1 SUMMARY:

- A. This Section includes horizontal aluminum louver blinds.

#### 1.2 SUBMITTALS:

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product data for each type of horizontal louver blind specified. Include printed data on physical characteristics.
- C. Shop drawings showing location and extent of blinds. Show installation details at and relationship to adjoining work. Include elevations indicating blind units. Indicate location of blind controls.
- D. Samples in the form of manufacturer's color charts showing the full range of colors, textures, and patterns available for each type of horizontal louver blind indicated.
- E. Samples for verification of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare samples from the same material to be used for the Work.
  - 1. Louver: Manufacturer's standard-size unit, not less than 12 inches long.
- F. Schedule of horizontal louver blinds using same room designations indicated on Drawings.
- G. Maintenance data for horizontal louver blinds to include in the operation and maintenance manual specified in Division 01. Include the following:
  - 1. Methods for maintaining horizontal louver blinds and finishes.
  - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.3 QUALITY ASSURANCE:

- A. Single-Source Responsibility: Obtain each type of horizontal louver blind from one source and by a single manufacturer.

#### 1.4 PROJECT CONDITIONS:

- A. Field Measurements: Check actual horizontal louver blind dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Enclosure and Environmental Limitations: Do not install horizontal louver blinds until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

## PART 2 – PRODUCTS

## 2.1 MANUFACTURERS:

- A. Acceptable manufacturers: Subject to compliance with requirements, provide products by one of the following.
  - 1. Horizontal Louver Blinds:
    - a. Hunter Douglas, Inc., CD88
    - b. Levolor Corp.
    - c. CACO Inc., custom Signature Series Summit Horizontal mini-blinds.
- B. (WC-1) Basis of Design is SWF Contract; (Aluminum-Classics) with concealed mounting of head rail and maximum light control.

## 2.2 HORIZONTAL LOUVER BLINDS: (WC)

- A. Louvers: Manufacturer's standard as follows:
  - 1. Aluminum
  - 2. Nominal Louver Width: 1 inch (mini blinds).
  - 3. Spacing of slats to be 18mm.
- B. Louver Thickness: 0.008 inch.
- C. Tilt Operation: Manual with wand.
  - 1. Length of Tilt Control: As required so that bottom of wand is at least 36 inches above finished floor.
  - 2. Position of Tilt Control: Left side.
  - 3. Tilt: Full
- D. Cord-Lock Operation: Cord lock; locks pull cord to stop blind at any position in ascending or descending travel.
  - 1. Position of Cord Lock: Right Side.
- E. Cord Equalizers: Self-aligning to maintain horizontal louver blind position.
- F. Mounting: As indicated.
- G. Colors and Patterns: Where manufacturer's standard products are indicated, provide horizontal louvers complying with the following requirements:
  - 1. Provide Architect's selections from manufacturer's full range of colors and patters for horizontal louver blinds of type indicated.

## 2.3 FABRICATION:

- A. Product Standard and Description: Comply with AWCMA Document 1029 for each horizontal louver blind unit consisting of louvers, rails, cord locks, tilting mechanisms, tapes, and installation hardware.
- B. Lifting and Tilting Mechanisms: Noncorrosive, self-lubricating materials.
- C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F:

1. Blind Units Installed Between (Inside) Jambs: Width equal to ¼ inch per side of ½ inch total, plus or minus 1/8 inch, less than jamb to jamb dimension of opening in which each blind is installed. Length equal to ¼ inch, plus or minus 1/8 inch, less than head to sill dimension of opening in which each blind is installed.
  2. Blind Units Installed Outside Jambs: Width equal to frame width plus ½ inch, plus or minus 1/8 inch each, and length equal to height of frame plus 1 inch, plus or minus 1/8 inch, with terminations between blinds of end-to-end installations at centerlines of mullion or other defined vertical separations between openings.
- D. Installation Fasteners: Not less than 2 fasteners per bracket, fabricated from metal noncorrosive to blind hardware and adjoining construction; support blind under conditions of normal use.

### PART 3 – EXECUTION

#### 3.1 EXAMINATION:

- A. Examine substrates, areas, and condition for compliance with requirements for installation tolerances and other conditions affecting performance of horizontal louver blinds. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION:

- A. Install blinds level, plumb, and located so exterior louver edges in any position are not closer than 1 inch to interior face of glass lites.

#### 3.3 ADJUSTING:

- A. Adjust components and accessories for proper operation.

#### 3.4 CLEANING:

- A. Clean blind surfaces, according to manufacturer's instructions, after installation.
- B. Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.

#### 3.5 PROTECTION:

- A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensure that horizontal louver blinds are without damage or deterioration at the time of Substantial Completion.

#### 3.6 HORIZONTAL LOUVER BLIND SCHEDULE:

- A. General: Provide horizontal louver blinds to comply with requirements in this Section.
- B. Reference the A701 Interior Finish Plan for locations.

END OF SECTION 12 21 13





## SECTION 12 24 00 – WINDOW SHADES (MANUAL)

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes manually operated roller shades with single rollers made from opaque/blackout fabric window shades including, controls, and mounting hardware.
- B. Reference A700, A702 & A703 for locations.

#### 1.2 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product data for each type of window shade specified. Include printed data on physical characteristics.
- C. Shop drawings showing locations and extent of window shades. Provide elevations indicating window openings. Show installation details at and relationship to adjoining work. Include plans, elevations, sections, details, details of installation and operational clearances.
  - 1. Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
  - 2. Use same designations indicated on Drawings. (All interior & exterior windows).
- D. Indicate location of shade controls.
- E. Samples of manufacturer's colors, finishes, textures, and patterns as scheduled or acceptable manufacturer's closest match:
  - 1. Shade Fabrics for the following:
  - 2. Metal finish
- F. Schedule of window shades using same room designations indicated on Drawings. Indicate field verified window dimensions, quantities, type of shade, controls, fabric, and color.
- G. Manufacturer's installation instructions.
- H. Maintenance data for window shades to include in the operation and maintenance manual specified in Division 1. Include the following:
  - 1. Methods for maintaining window shade fabric and finishes.
  - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.3 QUALITY ASSURANCE:

- A. Single-Source Responsibility: Obtain each type of window shade from one source and by a single manufacturer.
- B. Installer shall be qualified to install specified products by prior experience.
- C. Fire-Test-Response Characteristics: Provide products passing flame-resistance testing according to NFPA 701 by a testing agency acceptable to authorities having jurisdiction.
- D. Comply with WCMA A 100.1.

#### 1.4 PROJECT CONDITIONS

- A. Field Measurements: Check actual window shade dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Space Enclosure and Environmental Limitations: Do not install window shades until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.
- B. Deliver products in manufacturer's original, unopened, undamaged containers with labels intact.
- C. Label containers and shades according to Window Shade Schedule.

### PART 2 – PRODUCTS

#### 2.1 MANUFACTURERS: (WC)

- A. Subject to compliance with requirements, provide window shade as indicated here within and on the drawings, Sheet A700.
- B. Basis of Design Product:
  - 1. SWF Contract; Manually operated single roller solar shade.
  - 2. TruePerformance Manual Solar Shades
  - 3. Continuous-Loop Lift
  - 4. Matching Fabric Contour Valance sized to conceal shade roll with returns
  - 5. Heat sealed hem bar
  - 6. Finishes: Metal finish – 875 Clear anodized.
  - 7. SWF Contract  
8467 Route 405 Highway South  
Montgomery, PA 17752  
Phone: 1.877.792.0002
- C. Acceptable Manufacturers:
  - 1. Hunter Douglas, 4310 Regency Drive, Bldg 101, High Point, NC 27265  
Phone: 1. 336.812.8181
  - 2. Levolor, 3 Glenlake Parkway NE, 10th Floor, Atlanta, GA 30328  
Phone: 1. 800.752.9677

3. MechoShade, 42-03 35<sup>th</sup> Street, Long Island City, NY 11101-2301  
Phone: 1. 718.729.2020

## 2.2 MANUALLY OPERATED WINDOW SHADES WITH SINGLE ROLLERS

- A. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
  1. Bead Chains: 875 Clear anodized.
  2. Loop Length: As required to operate full height of window shade.
  3. Limit Stops: Provide upper and lower round nickel-plated steel ball stops.
  4. Chain-Retainer Type: Locking-style chain retainer restricts the operation of the chain unless the chain retainer is properly mounted to a fixed surface such as a window frame, sill, or wall. Compliant with American National Standard for Safety of Corded Window Covering Products ANSI A100.1. Non-locking P-Clip is not acceptable.
  5. Spring Lift-Assist Mechanisms (SA): Manufacturer's standard for balancing roller-shade weight and lifting heavy roller shades.
    - a. Provide 6 lb. (2.7 kg) lift assist for shades as recommended by manufacturer.
- B. Rollers: Extruded-aluminum tubes engineered with channel to accept fabric spline. The diameter and wall thickness to be determined by manufacturer based on fabric selection and shade size to provide minimal deflection and optimal performance.
  1. Clutch System: Consists of fiberglass filled nylon for wear resistance, smooth operation and corrosion resistance. The clutch is comprised Velvetrol™ internal spring arrangement for a smooth pulling force that locks the shade in any position when operating the control loop. The clutch mechanism is bi-directional and does not require adjustment or lubrication. Clutch to be inserted in roller tube at manufacturing. Clutch size to be selected by manufacturer based on fabric selection and shade size.
  2. Roller Drive-End Location: Right side of shade.
  3. Direction of Shade Roll: Regular, from back of roller.
  4. Fabric-to-Roller Attachment: Removable spline system shall consist of a co-extruded PVC spline heat-welded to the shade fabric and inserted into an engineered channel on the roller tube. The spline system allows for adjustability on-site and ease in changing fabric bands in the field.
  5. Idler End: Constructed of high strength, fiberglass filled nylon with spring-loaded pin-end technology for wear resistance, smooth operation, and corrosion resistance.
- C. Mounting Hardware: Brackets, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
  1. Thickness; 16 gauge.
  2. Material: Stamped steel.
  3. Description: Fascia bracket, 875 Clear anodized.
- D. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to couple up to three inline rollers into a linked shade system that is operable by one roller drive-end assembly. Linking system allows alignment of hem bars without removing shade from brackets by the Infinite Adjuster.
- E. Fabric Bands:
  1. Fabric Band Material: Light-blocking fabric.
  2. Fabric Band Bottom (Hem) Bar: Extruded aluminum.
    - a. Type: Hem bars to be extruded aluminum in weight sufficient for proper shade operation. Enclosed in heat sealed pocket of fabric band material.
    - b. Color and Finish: 875 Clear anodized.

## F. Installation Accessories:

1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism and attaches to roller end brackets without exposed fasteners.
  - a. Shape: L-shaped.
  - b. Size: Manufacturer's standard required to conceal roller and fabric band when shade is fully open, but not less than height 3.75 inches (95 mm) by 1.5 inches (38 mm).
  - c. Color and Finish: 875 Clear anodized.
  - d. End cap: to cover exposed ends of fascia.
2. Exposed Pocket: Rectangular, extruded aluminum 3-sided enclosure covering front, top and back, with optional end caps, and optional removable bottom closure plate.
  - a. Width 4.75 inches (121 mm) by Height 5 inches (127 mm).
  - b. End cap: to cover exposed ends of pockets.
  - c. Color and Finish: 875 Clear anodized.
3. Recessed Pocket: Rectangular, extruded aluminum enclosure designed for recessed ceiling installation; with front, top, and back formed as one piece, optional end caps, and optional removable bottom closure plate.
  - a. Width 4.75 inches (121 mm) by Height 5 inches (127 mm) with 0.875 inch (22 mm) tile support.
  - b. Color and Finish: 875 Clear anodized
4. Closure Plate and Closure Mount: Removable 2 inch (51 mm) or 3 inch (76 mm) closure plate designed for installation at bottom of site-constructed ceiling recess or pocket and for snap-in attachment to closure mount without fasteners.
  - a. Closure-Plate Width: 2 inches.
  - b. Closure Mount: Without acoustical tile support.
  - c. Color and Finish: 875 Clear anodized.

G. Endcaps: Stamped steel with universal design suitable for mounting to ceiling, wall, and jamb. Provide size compatible with roller size.

H. Shade slat: Slat encased in heat seamed hem.

I. Fascia: L shaped aluminum extrusion to conceal shade roller and hardware.

1. Attachment: Snaps onto endcaps without requiring exposed fasteners of any kind. Fascia can be mounted continuously across two or more shade bands.
2. Finish: Submit All metal colors to be selected by Architect to match 875 Clear anodized.

## 2.3 FABRICS: (WC)

- A. Fabric Band Material Flame-Resistance Rating: Comply with NFPA 701. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. (WC-2) Interior roll- 3% Openness Fabric- Basis of Design: SWF Contract, Crosshatch R300 Series, UV Blockage 97%, Fire Classification NFPA 701 TM#1, Roll Width 118", 21% Polyester/79% Vinyl on Polyester, Greenguard Gold, PB Lead Free. Color Linen/Fog. Submit samples to Architect for selection.

(WC-2) Exterior roll - Black out fabric - Basis of Design: SWF Contract, Conceal, Black out in a plain weave, Color: C2613 Fawn. 100% polyester fabric with acrylic foamed coating and an antimicrobial finish. Fire Classification NFPA 701 TM#1, Size 126" width, Fabric content 55% Polyester/45% Acrylic Coating, Greenguard Gold, PVC Free.

- C. Orientation: Regular roll.
- D. Metal finish – 875 Clear anodized.

#### 2.4 SHADE FABRICATION:

- A. Product Safety Standard: Fabricate roller shades to comply with ANSI - WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows: measured at 74 deg. F (23 deg. C):
  - 1. Between (Inside) Jamb Installation: Width equal to jamb-to-jamb dimension of opening in which shade is installed, minus 1/8 inch (3.1 mm). Length equal to head-to-sill or - floor dimension of opening in which shade is installed less 1/4 inch (6 mm), with an 1/8 inch (3.1 mm) tolerance.

### PART 3 – EXECUTION

#### 3.1 PREPARATION

- A. Field verify window dimensions prior to fabrication.
- B. Coordinate requirements for blocking, construction of shade pockets, and structural supports to ensure adequate means for installation of window shades.
- C. Coordinate installation of recessed shade pockets with construction of suspended gypsum board ceilings specified in Section 09 21 16 – Gypsum Board Assemblies.

#### 3.2 INSTALLATION

- A. Install window shades at locations indicated on Drawings and approved Window Shade Schedule.
- B. Comply with shade manufacturer's written instructions and approved submittals.
- C. Install roller shades level, plumb, and aligned with adjacent units per manufacturer's written instructions.
  - 1. Opaque Fabric Bands: Located so fabric band is not closer than 2 inches (51 mm) to interior face of glass. Allow clearances for window operation hardware.
- D. Shade pockets where concealed mounting is indicated:
  - 1. Install shade pockets in conjunction with installation of ceiling system. Attach to supporting structure with screws through top of pocket at 24 inches' minimum centers.
  - 2. Install pocket ends securely and in alignment with pockets.

3. After interior construction is essentially complete, install shade and operating mechanism in pocket.

E. Install fascia and endcaps to conceal roller and operating mechanism where surface mounting is indicated. Do not use exposed fasteners.

F. Provide and install chain catches.

### 3.3 TESTING AND DEMONSTRATION

A. Demonstrate operation of shades to Owner's designated representatives.

### 3.4 PROTECTION

A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensure window shades are without damage or deterioration at the time of Substantial Completion.

B. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

C. Clean shade assemblies and protect from damage from construction operations.

D. Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.

END OF SECTION 12 24 00