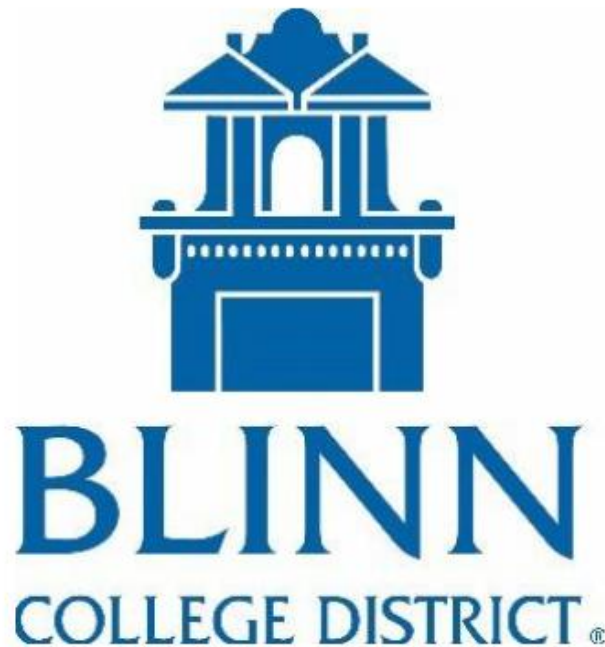


**BLINN COLLEGE DISTRICT**  
**BRENHAM, TEXAS**

PROJECT MANUAL FOR:

**BLINN MECHANICAL PROJECTS**  
**BRENHAM-MELCHER + BCPA2**

VOLUME 1



**ISSUED FOR CONSTRUCTION**  
**Date 12.13.2024**

**PREPARED BY:**  
**BLINN COLLEGE Facilities, Planning and Construction**  
**979-830-4431**

**Ramirez - Simon**  
 **Engineering, LLC**  
9805 Whithorn Houston Texas 77095  
Firm Registration No. F-14781

DOCUMENT 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

A. Architect:

1. Ramirez-Simon is the Mechanical, Electrical and Plumbing Engineer and is considered the Prime contract holder and is hereby referenced as Architect in the Specifications.
2. Responsible for Divisions 01-49 Sections except where indicated as prepared by other design professionals of record.

1.2

A. Plumbing Engineer:

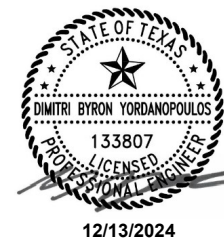
1. Ramirez Simon Engineering, LLC, Kristen Owen, PE
2. TX #93869
3. Responsible for 22 0500, 22 0504, 22 0523, 22 0700, 22 1100, 22 3400, 22 7000.



B.

C. Electrical Engineer:

1. Ramirez Simon Engineering, LLC, Dimitri Yordanopoulos, PE
2. TX #133807
3. Responsible for 26 0500, 26 0502, 26 0519, 26 0526, 26 0529, 26 0533, 26 0553, 26 2416, 26 2726, 26 2816.



END OF DOCUMENT 000107

DOCUMENT 000115 - LIST OF DRAWING SHEETS

1.1 LIST OF DRAWINGS

- A. Drawings: Drawings consist of the Contract Drawings and other drawings listed on the Table of Contents page of the separately bound drawing set titled **BLINN MECHANICAL PROJECTS – BRENHAM-MELCHER + BCPA2**, dated **12/13/2024**, as modified by subsequent Addenda and Contract modifications.
- B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:
  - 1. G001 General Sheet List and Location Map
  - 2. E001 Electrical General Information
  - 3. E301 Electrical Melcher Floorplan
  - 4. E302 Electrical BCPA2 Floorplan
  - 5. E501 Electrical Details
  - 6. E601 One Line Diagrams and Schedules
  - 7. P001 Plumbing General Information
  - 8. P201 Plumbing Melcher Floor Plan
  - 9. P202 Plumbing BCPA2 Floor Plan
  - 10. P501 Plumbing Details

END OF DOCUMENT 000115



## REQUEST FOR PROPOSAL #220

Blinn College District invites qualified firms to submit Competitive Sealed Proposals for:

**MECHANICAL CONTRACTOR SERVICES**  
**Brenham Campus Mechanical Repairs**

Proposals will close on:

**January 16, 2025 @ 2:15 PM C.D.T**

**Sealed Proposals** must be submitted to the following location with the RFP # in the lower left corner of the envelope.

**Faxed and e-mailed qualifications will not be accepted.**

**Mail Proposals to:**

**Blinn College District Purchasing  
902 College Avenue  
Brenham, Texas 77833**

**Deliver Proposals to:**

**Blinn College District Purchasing  
Old Main – 806 College Avenue, Room 207  
Brenham, Texas 77833**

**RFP # 220**

**Competitive Sealed Proposals for Mechanical Contractor Services – Mechanical Repairs at the Blinn – Brenham Campus for Blinn College Park Apartments (BCPA) Phase II and Melcher Hall.**

Vendors are encouraged to register and submit proposals through the Blinn College District E- procurement site: <https://blinn.ionwave.net/Login.aspx>.

**Faxed and e-mailed qualifications will not be accepted.**

Proposals that arrive after the closing date and time will be rejected. Time/date stamp clock in the Purchasing Department shall be the official time of receipt. Responses received in the Purchasing Department after submission deadline shall be returned unopened and will be considered void and unacceptable. Mailing of a Proposal does not ensure that the RFP will be delivered on time or delivered at all. The proposer (not the college mail system) is solely responsible for ensuring the RFP is received prior to the closing date and time. **Delivery at any other campus location or any other department is unacceptable.**

Blinn College District reserves the right to reject any and/or all RFP's, to award contracts as may appear advantageous to the Blinn College District, and to waive all formalities in offering.

*Ross Schroeder – Director of Purchasing*

Blinn College District, a Junior College District of Washington County is receiving competitive sealed proposals for Mechanical Contractor Services for Mechanical Repairs at the Blinn Campus in Brenham, Texas. The selection of the General Contractor will be in compliance with the provisions of the Texas Educational Code Section 44.031 and consist of the one-step process set forth in Section 2269 of the Texas Government Code.

## **1. Response to Request for Competitive Sealed Proposals**

Respondents are required to provide detailed written responses to this RFP no later than **January 16, 2025 @ 2:15PM C.D.T.** Responses must be delivered to the Blinn College District, Purchasing Department, Old Main 806 College Avenue, Room 207 Brenham, Texas 77833. Responses may also be submitted through Blinn College's E-procurement site at <https://blinn.ionwave.net/Login.aspx>. Responses received after this date will not be considered or accepted.

Written responses shall address each requirement identified in this RFP. Failure to provide all requested information will be considered an incomplete response. Blinn College District reserves the right to reject any or all proposals and to accept any proposal deemed as providing the best value to the Blinn College District. Blinn College District shall rank the respondents in the order that they provide the "best value" for the College based on the published selection criteria and on the ranking evaluations. Interviews of General Contractor firms may follow at the Owner's option.

Respondents are required to submit one (1) bound (8 ½" x 11" format) copies and one (1) electronic copy (USB flash drive or Disk) of the proposal statement.

Questions regarding the project and this Request for Proposals are to be directed to:

Ross Schroeder  
Blinn College District  
Director of Purchasing  
902 College Ave.  
Brenham, Texas 77833  
Phone: 979-830-4118  
Email: [Ross.Schroeder@Blinn.edu](mailto:Ross.Schroeder@Blinn.edu)

## **RFP #220 Calendar**

<b>Date/Time</b>	<b>Action</b>
December 17, 2024	Advertisement #1
December 24, 2024	Advertisement #2
January 7, 2025, 2:30pm	Pre-Proposal Meeting: Blinn-Brenham Campus Old Main 806 College Ave, Room 302 Brenham, TX 77833 <a href="#">CLICK HERE FOR CAMPUS MAP</a>
January 10, 2025, 5:00 pm	Last day and time to submit email inquires Submit to: <a href="mailto:Ross.Schroeder@Blinn.edu">Ross.Schroeder@Blinn.edu</a>
January 13, 2025	Addenda issued, if any, communicated by e-mail
January 16, 2025, 2:15 p.m.	Deadline for Submission, RFP #220 Blinn College District Purchasing Attn: Mr. Ross Schroeder, Director of Purchasing 902 College Ave. Brenham, Texas 77833
January 2025	Submit Agenda Item to Administration
February 18, 2025	Recommendation of selected firm to the Board of Trustees for approval

## **2. Scope of Work**

- A. The scope of work for the project will include the following, as illustrated, and described within the Contract Documents issued by Ramirez-Simon Engineering, LLC., and as outlined in the Bid Form:
1. Blinn College Park Apartments - Base Bid 1: Contractor to demolish existing boilers and install new instantaneous water heaters, piping, valves and connections as outlined in the drawings and specifications.
  2. Melcher Hall – Base Bid 2: Contractor to demolish existing boilers and install new water heater and install Owner Furnished storage tank, piping, valves and connections as outlined in the drawings and specifications.

### **Project Schedule:**

The anticipated schedule will allow submittals and procurement to commence with the execution of the construction contract and will allow construction to commence on May 12, 2025. The success of this project relies on completion of all construction by August 1, 2025.

### **3. Evaluation Criteria and Selection Process**

#### **Proposal Evaluation Criteria and Requirements**

All proposals will be evaluated based on the criteria listed below by the evaluation committee. The committee shall consist of individuals who have knowledge or experience of the subject matter in the RFP; or beneficiaries and /or users of the RFP's subject matter.

#### **1. Qualifications, Experience, & Reputation (30 pts.)**

- A. Provide your company profile including history, company principals, number of employees, annual revenues, date the company was established, and any lawsuits/liens within the past five years in accordance with the format included in this RFP.
- B. Provide a list of five (5) completed projects within the last five (5) years, which are similar/relevant to the project under this RFP in accordance with the format included in this RFP.
- C. Relevant Client References – Provide three (3) references of completed projects within the last five (5) years, which are similar/relevant to the project under this RFP in accordance with the format included in this RFP.

#### **2. Proposed Lead Personnel (20 pts.)**

- A. Provide a list of all your proposed personnel indicating the position they will hold within the project and their years of experience as it relates to this project.
- B. Provide an organization chart that depicts all your lead personnel. Include current domicile location for each person and employment duration with the firm.
- C. Provide resumes for all your lead personnel.
- D. Indicate where the office providing the services under this RFP is located.
- E. Indicate if any of the lead personnel are in a different office and the location of that office.
- F. List any current projects that your lead personnel are currently participating.

#### **3. Ability to meet Project Completion Timeline (15 pts.)**

- A. Indicate in a brief paragraph whether your company can meet the project timeline as specified under this RFP.
- B. Provide an overview of the approach and methodology that will be followed to accomplish the project's timeline.
- C. Provide a detail schedule of how the project will be accomplished.

#### **4. Completeness and Thoroughness of Qualifications Package (5 pts.)**

- A. RFP submittal packet must be clear, concise, and easy to follow. Provide materials in tabs that correspond with all requested information on the criteria factors.

#### **5. Proposal Cost: Provide on Bid form included in the project specifications (30 pts.)**

#### **4. TERMS, CONDITIONS AND AGREEMENTS**

##### **1.000 ANNULMENTS AND RESERVATIONS:**

- 1.001 Blinn College District reserves the right to reject any and all bids and waive any and all formalities and conditions. The College reserves the right to retain all bids received for 30 days prior to taking any action and vendors shall not withdraw their bid at any time thereafter. Blinn College shall accept the bid determined by the College to be in its best interest. It is not the intent of any condition or specification in the RFB to prohibit any responsible vendor from submitting a bid.
- 1.002 This Request for Bid is not construed as a CONTRACT or a COMMITMENT of any kind. The request for bid does not commit Blinn College to pay for any costs incurred in the preparation and submission of specifications or for any costs incurred prior to the execution of a final offer.
- 1.003 Blinn is not obligated to purchase any item or service, if funds are not allocated by the Grant, legislative session, or the Board of Trustees.

##### **2.000 VENDOR'S OBLIGATIONS:**

- 2.001 Substitutions will not be allowed after a bid has been submitted for review and will not be delivered instead of the item bid, unless the item is of a higher quality than the item specified and approved by the Director of Purchasing.
- 2.002 Any item that does not perform or meet the specifications or warranty, or as claimed by the vendor, will be replaced at no cost to the College.
- 2.003 Any specification a vendor may not agree with must be submitted in writing to the Purchasing Office four (4) days in advance of the bid closing date.
- 2.004 Prompt payment discounts shall be listed on the bid form.
- 2.005 In bidding, give complete information in spaces provided; otherwise, your bid offer may not be given consideration. All bid offers must be signed to be considered.

##### **3.000 AWARD DETERMINATION / OBLIGATIONS BY THE COLLEGE:**

- 3.001 Blinn College will award this service to the vendor providing the best value as it deems to be in the best interest of the college.
- 3.002 In determining to whom to award a contract, the district shall consider:
- A. the price(s) bid.
  - B. the quality of the vendor's goods or services.
  - C. delivery of services in a timely manner.
  - D. the reputation of the vendor and of the vendor's goods or warranty services.
  - E. the extent to which the goods or services meet the district's needs.
  - F. the vendor's past relationship with the district.
  - G. the total long-term cost to the district to acquire the vendor's goods or services; and
  - H. any other relevant factor that a private business entity would consider in selecting a vendor.
- 3.003 The College may make such investigations, as it deems necessary, to determine the ability of the



vendor to provide satisfactory performance in accordance with the specifications. The vendor shall furnish to the College all such information and data for this purpose as the College may request.

4.000 **INTERPRETATIONS OF THE SPECIFICATIONS:**

4.001 Only the interpretation or correction so given by the College, in writing, shall be binding and prospective vendors are advised that no other source, outside of the college, is authorized to give information concerning, explain or interpret, the bid document.

4.002 Every request for such interpretation or correction must be in writing to the Director of Purchasing. All such interpretation and supplemental instructions will be in the form of written addenda to the bidding documents prior to the bid opening. Your questions concerning the bid specifications must be submitted in writing. We will return a written answer to your company.

5.000 **DELIVERY:**

5.001 Delivery of equipment and services must be made by the successful vendor to:

Blinn College District  
902 College Avenue  
Brenham, Texas 77833

5.002 No allowance for loss, breakage, damage, or difficulties shall be made.

6.000 **BILLING AND PAYMENT/DISCOUNTING:**

6.001 All invoices are to be submitted and mailed to:

Blinn College District  
902 College Avenue  
Brenham, Texas 77833

6.002 Unless otherwise stated on the purchase order, payment will be net thirty (30) days after receipt of a correct invoice. If a cash discount is allowed for prompt payment, please indicate on the invoice. Partial payments may be paid if partial shipments have been made. Any penalty for delayed payment must be stated on the invoice.

7.000 **TAX EXEMPTIONS:**

7.001 Prices Bid SHALL NOT INCLUDE FEDERAL EXCISE OR STATE SALES AND USE TAXES as the COLLEGE is exempt from the payment of these taxes. Exemption Certificates for the Federal Excise Tax and State of Texas Sales Tax will be furnished upon request.

8.000 **PRICE QUOTATIONS:**

8.001 Lump sum price. The unit price shall include all costs of labor, profit, insurance, FOB freight, etc. to make operational and cover all work outlined in the specifications of this project.

8.002 Bids must be submitted on the forms provided to insure complete uniformity of wording of all bids. Bids may be rejected if they show any omissions, alterations in wording, conditional clauses, or irregularities of any kind.

9.000 **RIGHT OF VENDOR SELECTION:**

9.001 You are notified that although the College is required to submit purchases of all contracts of \$50,000 to competitive bidding, it is not required to accept the lowest bid. In such purchasing the lowest bid may be rejected if the College, in the exercise of its best judgment, feels that the bid of one other than the low bidder will best serve the interest of the College.

9.002 Blinn College District reserves the right to accept or reject any or all bids in its entirety and/or waive all formalities. This inquiry implies no obligation on the part of the buyer, nor does the buyer's silence imply any acceptance or rejection of any quotation offer.

10.000 **REFERENCES:**

10.001 Please provide educational references in addition to non-educational references.

11.000 **CONFLICT OF INTEREST:**

11.001 No public official shall have interest in this contract, in accordance with Vernon's Texas Codes Annotated, Local Government Code Title 5, Subtitled C, Chapter 171 and Chapter 176.

12.000 **ETHICS:**

12.001 The vendor shall not accept or propose gifts or anything of value nor enter any business arrangement with any employee, official or agent of Blinn.

12.002 House Bill 1295

Effective January 1, 2016, Blinn College shall comply with the "Disclosure of Interested Parties" requirements mandated by HB 1295, as implemented by the Texas Ethics Commission. Briefly stated, contracts for goods or services which require an action vote by Blinn's governing body may not be executed by the college until the awarded vendor presents a signed and notarized form disclosing the interested parties to the contract. The awarded vendor will be required to complete the form prior to execution of the contract. If the awarded vendor does not comply, the award may be revoked. The filing application and information can be accessed at:

[https://www.ethics.state.tx.us/whatsnew/elf\\_info\\_form1295.htm](https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm)

13.000 **STATE LAW REQUIREMENTS:**

13.001 This agreement will be governed and construed according to the laws of the State of Texas.

**VENUE** The parties agree that regarding any dispute or litigation that may arise in the execution and performance of this contract, that venue for all proceedings, judicial or otherwise shall be in "Washington County", Texas

13.002 All equipment and services furnished under this contract shall comply with applicable laws, ordinances, and regulations. The bidder shall give all notices and comply with all laws, ordinances, rules, and regulations, and without such notice to the authorized Owner's representative, the bidder shall bear all costs arising there from.

13.003 On May 30, 1995, Governor, George Bush, signed Senate Bill 1. It became effective on the day he signed it. The following is a requirement included in this law. It is mandatory that the College must include this in all Bids. Each vendor must respond to this section of the law.

**Section 44.034 TEC. Notification of Criminal History of Contractor.** (This section does not

apply to a publicly held corporation).

(a) A person or business entity that enters a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony.

The school district must have advance notice that a person, owner, or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

(b) A school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.

#### **13.004 State of Texas Government Code Chapter 176 –**

Vendors submitting a response to a Blinn College RFB/RFP are responsible for complying with all applicable laws, ordinances and regulations including the provisions of the State of Texas Government Code Chapter 176. As applicable, the person submitting a response to a RFB/RFP must complete and submit a Conflict of Interest Questionnaire form CIQ, in a format approved by the Texas Ethics Commission. This form is to be included with your bid. A copy of the CIQ form can be found at the Texas Ethics Commission Web site.

#### **14.000 UNIFORM & COMMERCIAL CODE:**

14.001 This writing and subsequent interview information given and forward to the College shall be a sole and final expression of the agreement between the College and the vendor and is intended also as a complete an exclusive statement of the terms of their agreement. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is controlling.

14.002 This agreement shall be governed by the laws of the State of Texas. By submitting a signed bid, the vendor certifies that the company does not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, and certifies that the company complies with equal employment opportunity regulations.

#### **15.000 ENTIRE AGREEMENT**

15.001 This bid document, the authorized purchase order, and/or a signed contract constitute the entire agreement. No other document will prevail.

#### **16.000 CANCELLATION**

16.001 Blinn College District shall have the right to cancel for default all or any part of the undelivered portion of this contract if the Awarded Vendor breaches any of the terms hereof including warranties as bid or if the Awarded Vendor becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any remedies which Blinn College District may have in law or equity.

Bidding questions should be referred to:

**Ross Schroeder, Director of Purchasing**

Blinn College District

902 College Ave

Brenham, TX 77833

(979) 830 4118

e-mail: [ross.schroeder@blinn.edu](mailto:ross.schroeder@blinn.edu)

**Felony Conviction Notification**

State of Texas Legislative Senate Bill No. 1, Section 44,034, Notification of Criminal History, Subsection (a), states a person or business entity that enters into a contract with a College must give advance notice to the College if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

(I) (We), the undersigned agent for the firm named below, certify that the information concerning notification of felony convictions has been reviewed by me and the following information furnished is true to the best of my knowledge.

COMPANY NAME: \_\_\_\_\_

AUTHORIZED PRINTED NAME: \_\_\_\_\_

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

**Check the appropriate box and sign the form.**

My firm is a publicly held corporation, therefore, this reporting requirement is not applicable.

AUTHORIZED SIGNATURE:

My firm is not owned nor operated by anyone who has been convicted of a felony.

AUTHORIZED SIGNATURE:

My firm is owned or operated by the following individual(s) who has/have been convicted of a felony.

Name of Felony: \_\_\_\_\_

Details of Conviction(s) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

AUTHORIZED SIGNATURE: \_\_\_\_\_

## VENDOR CERTIFICATION FORM

1. Vendor hereby acknowledges that it is unlawful to offer, give, agree to give to any person, or solicit, demand, accept, or agree to accept from another person, a bribe, or unlawful gift, benefit, advantage, gratuity, payment, or an offer of employment in connection with or arising from this RFP or subsequent contract.
2. Persons submitting a response to this RFP must comply with all applicable laws, ordinances and regulations including the provisions of the State of Texas "Local Government Code Chapter 176. As applicable, the person submitting a response to this RFP must complete and submit a Conflict of Interest Questionnaire form CIQ, in a format approved by the Texas Ethics Commission. A copy of the form can be found below or at the Texas Ethics Commission web site <http://www.ethics.state.tx.us/forms/CIQ.pdf>
3. Texas Resident Information: Chapter 2252, Subchapter A, of the Texas Government Code, establishes certain requirement applicable to proposers who are not Texas Residents. Under the Statute, a "Resident" vendor is one whose principal place of business is in Texas, including one whose ultimate parent company or majority owner has its principal place of business in Texas or employs at least 500 persons in the State of Texas:

Location of Principal Place of Business (City / State) and or Number of employees based in Texas:  
Address \_\_\_\_\_

Or Number of Employees that reside in Texas: \_\_\_\_\_

4. **Debarment Certification:** Vendor certifies neither the owner or principal owner has been debarred, suspended, or otherwise made ineligible for participation in Federal Assistance programs under Executive Order 12549 "Debarment and Suspension" as described in the Federal Register and Rules and Regulations:  
  
 No, Vendor is not currently debarred, suspended or otherwise ineligible.  
 Yes, Vendor is currently debarred, suspended or otherwise ineligible.
5. In accordance with Chapter 2270 of the Texas Government Code, by accepting this contract, you verify that your firm does not Boycott Israel, and agree that during the term of this agreement will not Boycott Israel as that term is defined in the Texas Government Code, Section 808.001 as amended.
6. Texas Government Code, Subchapter F, Prohibition on Contracts with Certain Companies, Section 2252.152, Vendor certifies they do not do business with companies engaged in business with Iran, Sudan, or Foreign Terrorist Organization that is identified on a list prepared and maintained under Section 806.051, 807.051, or 2252.153.

**VENDOR CERTIFICATION.** The undersigned, on behalf of Vendor, certifies that this proposal is made without previous understanding, agreement or connection with any person, firm, or corporation submitting a proposal on the same project, and is in all respects fair and without collusion, fraud, or unlawful acts.

It is further certified that the person whose signature appears below is legally empowered to bind the Company in whose name the proposal is entered.

Submitted this \_\_\_\_\_ day of \_\_\_\_\_, 2025 by and for the Company identified as follows:

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

Printed Name: \_\_\_\_\_

**CONFLICT OF INTEREST QUESTIONNAIRE**  
For vendor doing business with local governmental entity

**FORM CIQ**

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

**OFFICE USE ONLY**

Date Received

**1** Name of vendor who has a business relationship with local governmental entity.

**2**  Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

**3** Name of local government officer about whom the information is being disclosed.

\_\_\_\_\_  
Name of Officer

**4** Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes       No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes       No

**5** Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

**6**  Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

**7**

\_\_\_\_\_  
Signature of vendor doing business with the governmental entity

\_\_\_\_\_  
Date

DOCUMENT 002113 - INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

A. AIA Document A701, "Instructions to Bidders," is hereby incorporated into the Procurement and Contracting Requirements by reference.

1. A copy of AIA Document A701, "Instructions to Bidders," is bound in this Project Manual.

END OF DOCUMENT 002113

# 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 «X» day of «February» in the year «Two Thousand Twenty-Five.»

(In words, indicate day, month and year.)

**BETWEEN** the Owner:

(Name, legal status, address and other information)

«Blinn College District»  
«902 College Avenue»  
«Brenham, TX 77833»  
« »

and the Contractor:

(Name, legal status, address and other information)

«Contractor »  
« »  
« »  
« »

for the following Project:

(Name, location and detailed description)

« Mechanical Projects – Brenham Campus  
BCPA Phase II  
406 S. Saeger St  
Brenham, TX 77833  
Melcher Hall  
601 Prairie Lea St  
Brenham, TX 77833»

The Architect/Engineer:

(Name, legal status, address and other information)

« Ramirez-Simon Engineering, LLC »  
9805 Whithorn Drive.»  
Houston, TX 77095 »

«Ramirez-Simon Engineering LLC. is the Mechanical, Electrical and Plumbing Engineer and is considered the Prime Consultant and is hereby referenced as Architect in the following form of agreement. »

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.



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### EXHIBIT A INSURANCE AND BONDS

#### 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.

[ «X» ] Established as follows:

«Construction shall commence no later than **May 12, 2025**.»

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 « » ( « » ) calendar days from the date of commencement of the Work.

[ «X» ] By the following date: « Substantial Completion by August 2, 2024.

§ 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
«»	

§ 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 « Dollars and Zero Cents (\$XXX)», 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
Alternate Bid # 1:	\$
Alternate Bid # 2:	\$
Alternate Bid # 3:	\$
Alternate Bid # 4:	\$

§ 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
«Base Bid Owner's Contingency: Owner's Contingency, these funds shall be included in the contract price for use at the sole discretion of the Owner and Architect/Engineer »	\$

§ 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.)

«For each calendar day that the work remains incomplete after the date of Substantial Completion as determined above, Blinn College District will deduct **Five Hundred Dollars and Zero Cents (\$500.00)** from the monies due to the Contractor, not as a penalty but as liquidated damages. The sum of money thus deducted for such delay, failure, or non-completion is not to be considered as a penalty but shall be deemed, taken and treated as reasonable liquidated damages, since it would be impractical and extremely difficult to fix the actual damages. »

**§ 4.6 Other:**

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

« »

**ARTICLE 5 PAYMENTS**

**§ 5.1 Progress Payments**

**§ 5.1.1** Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/Engineer, 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:

«N/A»

**§ 5.1.3** Provided that an Application for Payment is received by the Architect/Engineer pursuant to Chapter 2251 of the Texas Government Code, the Owner shall make payment of the certified amount to the Contractor.  
*(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/Engineer 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/Engineer determines, in the Architect/Engineer'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/Engineer 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/Engineer 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 may withhold the following amount, as retainage, from the payment otherwise due:  
*(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)*

«Five Percent (5%) »

**§ 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.)*

«N/A»

**§ 5.1.7.2** Reduction or limitation of retainage, if any, shall be as follows:  
*(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.)*

«N/A»

**§ 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.)*

«N/A»

**§ 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.

**§ 5.2 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/Engineer.

**§ 5.2.2** The Owner’s final payment to the Contractor shall be made pursuant to Chapter 2251 of the Texas Government Code.

**§ 5.3 Interest**

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated in Chapter 2251 of the Texas Government Code.

**ARTICLE 6 DISPUTE RESOLUTION**

**§ 6.1 Initial Decision Maker**

The Architect/Engineer 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/Engineer.)

«N/A »

## § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, Chapter 2260 of the Texas Government Code, 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)

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.)

«The Owner shall not pay a termination fee. »

§ 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:

The Owner shall identify a representative authorized to act on behalf of the Owner with respect to the Project. The Owner's representative shall render decisions promptly and furnish information expeditiously, so as to avoid unreasonable delay in the services or Work of the Contractor. Except as otherwise provided in Section 4.2.1 of A201-2017, the Architect/Engineer does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative. Provided, however, changes in the scope of the Work or the Contract Sum will generally require approval by the Owner's Board of Trustees.

The Owner's representative shall be:

(Name, address, email address, and other information)

«Jessica Gaida  
Director of Facilities, Planning, and Construction  
902 College Ave.  
Brenham, Texas 77833  
979-830-4467  
Jessica.Gaida@blinn.edu »

§ 8.3 The Contractor's representative:

(Name, address, email address, and other information)

<< >>  
<<  
<<  
<< >>  
<<Phone: >>  
<<Email:

§ 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 AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 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 When work is to be performed at a project site and school activities are being conducted, Contractor shall take special care, and shall require its subcontractors, and all persons performing work at the site to take special care, to protect the safety and welfare of the students, teachers, employees, and visitors at the school, and to perform the work with as little disruption to the learning environment and school activities as possible.

§ 8.7.2 When work is to be performed at a project site where school activities are being conducted, it is expressly understood and agreed that Contractor's and any subcontractors' employees and other persons performing work at the project site shall not engage in any inappropriate interaction of any nature whatsoever with students, teachers, employees and visitors at the school, including talking, touching, staring, or in any way contributing to a hostile or offensive environment. It is further expressly understood and agreed that there is to be no fraternization between Contractor's and any subcontractor's employees, and other persons performing work at the site, and students, teachers, employees and visitors at the school. There shall be zero tolerance for violations of these provisions.

§ 8.7.3 The possession or use of tobacco products, alcoholic beverages, illegal drugs, and firearms or weapons on Owner's property is prohibited at all times, twenty-four hours a day. There shall be zero tolerance for violations of this provision.

§ 8.7.4 Contractor, subcontractor, and all other persons performing work in connection with the project shall strictly observe (i) speed limits in the vicinity of the project site, including, without limitation, school speed limits, and (ii) any posted speed limits on the project site established by Owner. Contractor shall require strict compliance with this provision.

§ 8.7.5 Owner shall have the right to require the immediate removal from the project site of any person performing work who violates the provision of this Article 11 and to prohibit such person from being allowed to perform work at the project site in the future.

§ 8.7.6 A Contractor who fails to enforce compliance with the provisions of this Article 8, or who suffers or allows an employee, subcontractor or other person performing work at the project site to violate any of these provisions, shall be in breach of this Contract.

**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

The Contract Documents are enumerated in the Agreement between the Owner and Contractor being standard form AIA Document A101 - 2017 (hereinafter the Agreement) and consists of the Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Exhibits A, C, D, E and Exhibit B being the addendum to the Agreement dealing with Owner’s status as an educational institution of the State of Texas, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. These Contract Documents constitute the entire agreement between the parties.

As stated, Owner is an educational institution of the State of Texas. Due to Owner’s status as such, the parties have specifically negotiated the terms contained in the Agreement and Exhibit B being the addendum to the Agreement dealing with Owner’s status as an educational institution of the State of Texas and those documents have been made an integral part of the Contract Documents.

To the extent the language in the Agreement and Exhibit B to the Agreement, are in conflict with any language in the Conditions of the Contract (General, Supplementary, and other Conditions), the language in the Agreement and Exhibit B to the Agreement will control over the language in the Conditions of the Contract (General, Supplementary, and other Conditions).

**ALL CHANGES TO WORK SHALL FOLLOW THE PROCEDURES OUTLINED IN ARTICLE 7 OF THE GENERAL CONDITIONS. ANY CHANGES NOT FOLLOWING THESE PROCEDURES SHALL BE CONSIDERED UNAUTHROIZED CHANGES.**

- .4 Exhibit B: Addendum to Vendors Contracts
- .5 Exhibit C: Supplementary Conditions
- .6 Drawings

Number	Title	Date
« Refer to Exhibit D – List of Drawings		

.7 Specifications

Section	Title	Date	Pages
«Refer to Exhibit E - Specifications»			

.8 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.

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

« »

**OWNER** *(Signature)*

«Mary Hensley, Ed.D. »«Chancellor of the Blinn  
College District / CEO »

*(Printed name and title)*

**DATE**

« »

**CONTRACTOR** *(Signature)*

« » « »

*(Printed name and title)*

**DATE**





# 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 «X» day of «February» in the year «Two Thousand Twenty-Five» (In words, indicate day, month and year.)

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

«Mechanical Projects – Brenham Campus»

BCPA Phase II  
406 S. Saeger St  
Brenham, TX 77833

Melcher Hall  
601 Prairie Lea St  
Brenham, TX 77833»

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

«Blinn College District»  
«902 College Avenue  
Brenham, TX 77833»

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

«Contractor»  
«  
«»

#### 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** Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, 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, «two million dollars» (\$ «2,000,000.00») general aggregate, and «» (\$ «») 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 «» (\$ «») each accident, «» (\$ «») each employee, and «one million dollars» (\$ «1,000,000») 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 «one million dollars» (\$ «1,000,000.00») per claim and «one million dollars» (\$ «1,000,000.00») 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 « » (\$ « ») per claim and « » (\$ « ») 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 « » (\$ « ») per claim and « » (\$ « ») 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.)*

« »

§ 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 or Excess Liability insurance covering in excess of Automobile Liability, General Liability and Worker's Compensation Coverage B.

**Limits**

One times contract amount for all contracts exceeding \$100,000, up to \$25,000,000 total limit; \$1,000,000 minimum.

Certificate must list underlying policies and indicate that coverage in "following form".»

**§ 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	Penal Sum (\$0.00)
Payment Bond	100% of contract
Performance Bond	100% of contract

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:

«During the remodel process, new materials will be purchased by the Contractor with the intent of installing these materials at the Project. The Contractor shall insure these new materials until the time of the execution of the Certificate of Substantial Completion (document G704-2017 or subsequent updates thereof) by all of the parties. At such time, the new materials become the property of the Owner. »

# DRAFT AIA® Document A201™ – 2017

## General Conditions of the Contract for Construction

### for the following PROJECT:

(Name and location or address)

« Mechanical Projects – Brenham Campus

BCPA Phase II  
406 S. Saeger St  
Brenham, TX 77833

Melcher Hall  
601 Prairie Lea St  
Brenham, TX 77833»

### THE OWNER:

(Name, legal status and address)

«Blinn College District»  
«902 College Avenue»  
«Brenham, TX 77833»

### THE ARCHITECT/ENGINEER/ENGINEER:

(Name, legal status and address)

« Ramirez-Simon Engineering, LLC« »  
9805 Whithorn Drive.»  
Houston, TX 77095 »

«Ramirez-Simon Engineering LLC. is the Mechanical, Electrical and Plumbing Engineer and is considered the Prime Consultant and is hereby referenced as Architect in the following form of agreement. »

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- 9 PAYMENTS AND COMPLETION

**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.

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

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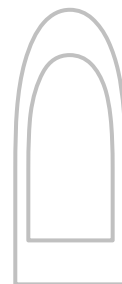
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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 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/Engineer/Engineer. 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/Engineer/Engineer or the Architect/Engineer/Engineer's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect/Engineer/Engineer or the Architect/Engineer/Engineer's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect/Engineer/Engineer shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect/Engineer/Engineer's duties.

#### **§ 1.1.3 The Work**

The term "Work" means the construction and services required by 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.

#### **§ 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/Engineer/Engineer and the Architect/Engineer/Engineer'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 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.

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

**§ 1.2.1** The intent of the Contract Documents is to include 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.

**§ 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.

### **§ 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 Architect/Engineer/Engineers.

### **§ 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** The Architect/Engineer/Engineer and the Architect/Engineer/Engineer'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. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the 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/Engineer/Engineer's or Architect/Engineer/Engineer's consultants' reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the 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. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the 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/Engineer/Engineer, and the Architect/Engineer/Engineer's consultants.

### **§ 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 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.

## § 1.7 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. 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.

## § 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.

## 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 express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect/Engineer/Engineer 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.

### § 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 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. If the Owner fails to provide such evidence, as required, within fourteen 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. 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.

§ 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.

### **§ 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.

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

**§ 2.3.3** If the employment of the Architect/Engineer/Engineer 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/Engineer/Engineer.

**§ 2.3.4** 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. The Contractor shall be entitled to 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 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.

### **§ 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 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.

### **§ 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. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect/Engineer/Engineer and the Architect/Engineer/Engineer 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 compensation for the Architect/Engineer/Engineer'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/Engineer/Engineer, 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 lawfully licensed, if required in the jurisdiction where the Project is located. 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/Engineer/Engineer in the Architect/Engineer/Engineer’s administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### § 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 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/Engineer any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect/Engineer 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.

§ 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/Engineer any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect/Engineer may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect/Engineer 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 performs those obligations, the Contractor shall not be liable to the Owner or Architect/Engineer 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.

### § 3.3 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 notice to the Owner and Architect/Engineer, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect/Engineer shall evaluate the proposed alternative solely for conformance with the design intent for the

completed construction. Unless the Architect/Engineer 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.

### § 3.4 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 approved by the Architect/Engineer in accordance with Section 3.12.8 or ordered by the Architect/Engineer in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect/Engineer and in accordance with a Change Order or Construction Change Directive.

§ 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.

### § 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect/Engineer that materials and equipment furnished under the Contract 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 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/Engineer, 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.

### § 3.6 Taxes

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.

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

§ 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.

§ 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.

§ 3.7.3 If the Contractor performs 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.

#### § 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/Engineer before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect/Engineer will promptly investigate such conditions and, if the Architect/Engineer determines 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/Engineer 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/Engineer shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect/Engineer'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/Engineer. 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

§ 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.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect/Engineer of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect/Engineer may notify the Contractor, stating whether the Owner or the Architect/Engineer (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect/Engineer 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/Engineer has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### § 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/Engineer's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (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. 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/Engineer's approval. The Architect/Engineer'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/Engineer 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 the Owner and Architect/Engineer.

### § 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/Engineer and Owner, and delivered to the Architect/Engineer 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/Engineer is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect/Engineer 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/Engineer without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect/Engineer, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect/Engineer 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.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect/Engineer that the Contractor has (1) reviewed and approved them, (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/Engineer.

§ 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/Engineer's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect/Engineer of such deviation at the time of submittal and (1) the Architect/Engineer 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/Engineer'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/Engineer on previous submittals. In the absence of such notice, the Architect/Engineer's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of Architect/Engineering or Architect/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/Engineer will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to 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, 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/Engineer. The Owner and the Architect/Engineer 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/Engineer have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect/Engineer 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/Engineer at the time and in the form specified by the Architect/Engineer.

### § 3.13 Use of Site

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.

### § 3.14 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/Engineer with access to the Work in preparation and progress wherever located.

### § 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/Engineer 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/Engineer. 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/Engineer.

### § 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect/Engineer, Architect/Engineer'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, 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), 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 such claim, damage, loss, or expense is caused in part by 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.

## ARTICLE 4 ARCHITECT/ENGINEER

### § 4.1 General

§ 4.1.1 The Architect/Engineer 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/Engineer as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect/Engineer. Consent shall not be unreasonably withheld.

#### § 4.2 Administration of the Contract

§ 4.2.1 The Architect/Engineer 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/Engineer issues the final Certificate for Payment. The Architect/Engineer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect/Engineer will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to 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/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect/Engineer 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/Engineer 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/Engineer will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect/Engineer 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.

#### § 4.2.4 Communications

The Owner and Contractor shall include the Architect/Engineer in all communications that relate to or affect the Architect/Engineer's services or professional responsibilities. The Owner shall promptly notify the Architect/Engineer of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. 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/Engineer's evaluations of the Contractor's Applications for Payment, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect/Engineer has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect/Engineer considers it necessary or advisable, the Architect/Engineer 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/Engineer 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/Engineer to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect/Engineer 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/Engineer's action will be taken in accordance with the submittal schedule approved by the Architect/Engineer or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect/Engineer'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/Engineer'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/Engineer's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect/Engineer'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/Engineer will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect/Engineer will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect/Engineer 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/Engineer agree, the Architect/Engineer will provide one or more Project representatives to assist in carrying out the Architect/Engineer'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/Engineer will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect/Engineer'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 and decisions of the Architect/Engineer 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 interpretations and decisions, the Architect/Engineer 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/Engineer's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect/Engineer will review and respond to requests for information about the Contract Documents. The Architect/Engineer'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/Engineer will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## 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 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 after award of the Contract, shall notify the Owner and Architect/Engineer 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 Architect/Engineer may notify the Contractor whether the Owner or the Architect/Engineer (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect/Engineer to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect/Engineer 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/Engineer has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect/Engineer has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of 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/Engineer 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/Engineer. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect/Engineer 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. 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.

### § 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 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 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 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.

## **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 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.

**§ 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/Engineer 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/Engineer 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/Engineer 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/Engineer. A Construction Change Directive requires agreement by the Owner and Architect/Engineer 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/Engineer alone.

§ 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.

### § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect/Engineer and signed by the Owner, Contractor, and Architect/Engineer stating their 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.

### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect/Engineer and signed by the Owner and Architect/Engineer, 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.

§ 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, 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
- .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/Engineer 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/Engineer 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/Engineer;



- .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.

§ 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 Architect/Engineer 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 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/Engineer. 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.

§ 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/Engineer will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect/Engineer determines, in the Architect/Engineer's professional judgment, to be reasonably justified. The Architect/Engineer'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.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect/Engineer 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/Engineer will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect/Engineer may 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/Engineer'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/Engineer and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect/Engineer's order for a minor change without prior notice to the Architect/Engineer 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 certified by the Architect/Engineer 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.

## § 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 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 achieve Substantial Completion within the Contract Time.

## § 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/Engineer, 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/Engineer determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect/Engineer may determine.

§ 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 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.

### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect/Engineer 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/Engineer. This schedule, unless objected to by the Architect/Engineer, shall be used as a basis for reviewing the Contractor’s Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect/Engineer and supported by such data to substantiate its accuracy as the Architect/Engineer may require, and unless objected to by the Architect/Engineer, shall be used as a basis for reviewing the Contractor’s subsequent Applications for Payment.

### § 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect/Engineer an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, 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/Engineer 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.

§ 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/Engineer, 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 pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 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.

§ 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.

#### § 9.4 Certificates for Payment

§ 9.4.1 The Architect/Engineer will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for 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 the Architect/Engineer determines is properly due, and notify the Contractor and Owner of the Architect/Engineer'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/Engineer'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/Engineer to the Owner, based on the Architect/Engineer's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect/Engineer'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/Engineer. However, the issuance of a Certificate for Payment will not be a representation that the Architect/Engineer 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/Engineer may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect/Engineer's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect/Engineer is unable to certify payment in the amount of the Application, the Architect/Engineer will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect/Engineer cannot agree on a revised amount, the Architect/Engineer will promptly issue a Certificate for Payment for the amount for which the Architect/Engineer is able to make such representations to the Owner. The Architect/Engineer may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be

necessary in the Architect/Engineer'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

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable 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 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect/Engineer's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect/Engineer withholds certification for payment under Section 9.5.1.3, 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 Architect/Engineer and the Contractor shall reflect such payment on its next Application for Payment.

#### § 9.6 Progress Payments

§ 9.6.1 After the Architect/Engineer has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect/Engineer.

§ 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 The Architect/Engineer 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/Engineer and Owner on account of portions of the Work done by such Subcontractor.

§ 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/Engineer 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.

§ 9.6.5 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 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, 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 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.

### **§ 9.7 Failure of Payment**

If the Architect/Engineer 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 within seven days after the date established in the Contract Documents, the amount certified by the Architect/Engineer or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect/Engineer, 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 of the Contractor's reasonable costs of 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 Architect/Engineer 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/Engineer will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect/Engineer'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/Engineer. In such case, the Contractor shall then submit a request for another inspection by the Architect/Engineer to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect/Engineer 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. 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.

**§ 9.8.5** 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.

### **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed 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 Architect/Engineer 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/Engineer.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect/Engineer 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** Unless otherwise agreed upon, 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/Engineer will promptly make such inspection. When the Architect/Engineer finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect/Engineer will promptly issue a final Certificate for Payment stating that to the best of the Architect/Engineer's knowledge, information and belief, and on the basis of the Architect/Engineer'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/Engineer'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.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect/Engineer (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) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) 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.

**§ 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/Engineer so confirms, the Owner shall, upon application by the Contractor and certification by the Architect/Engineer, 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/Engineer 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.

**§ 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.

## 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.

§ 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.

§ 10.2.5 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/Engineer 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/Engineer.

§ 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 either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall

be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

### **§ 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/Engineer 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/Engineer 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/Engineer 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/Engineer has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect/Engineer have no reasonable objection. 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.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect/Engineer, Architect/Engineer'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 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 handling of such materials or substances.

**§ 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 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 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 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/Engineer, and Architect/Engineer's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 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.

§ 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 **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 described 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 Waivers of Subrogation**

**§ 11.3.1** 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; (2) the Architect/Engineer and Architect/Engineer'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/Engineer, Architect/Engineer'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.

### **§ 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. The Owner waives all rights of action against the Contractor and Architect/Engineer for loss of use of the Owner's property, due to fire or other hazards however caused.

### **§ 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 as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect/Engineer and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect/Engineer 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.

## **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 Architect/Engineer's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect/Engineer, be uncovered for the Architect/Engineer'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 Architect/Engineer has not specifically requested to examine prior to its being covered, the Architect/Engineer 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. 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/Engineer 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/Engineer'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 acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, 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. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect/Engineer, 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 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.

§ 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

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.

### § 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, 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 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/Engineer, 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 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 with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect/Engineer timely notice of when and where tests and inspections are to be made so that the Architect/Engineer may be present for such procedures. The Owner shall bear 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/Engineer, 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/Engineer will, upon written authorization from the Owner, 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/Engineer of when and where tests and inspections are to be made so that the Architect/Engineer 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/Engineer's services and expenses, shall be at the Contractor's expense.

§ 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/Engineer.

§ 13.4.5 If the Architect/Engineer is to observe tests, inspections, or approvals required by the Contract Documents, the Architect/Engineer 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.

### § 13.5 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.

## 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 30 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/Engineer 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.

§ 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/Engineer, terminate the Contract and 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.

§ 14.1.4 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, 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/Engineer, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

### § 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly 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 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.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect/Engineer that sufficient cause exists to justify such action, 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 a detailed 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/Engineer'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 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.

### § 14.4 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 properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

## 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.

#### § 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 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 and to the Initial Decision Maker with a copy sent to the Architect/Engineer, if the Architect/Engineer is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 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 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 payments in accordance with the Contract Documents.

§ 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/Engineer will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

### § 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.

### § 15.1.6 Claims for Additional Time

§ 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.

§ 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.

### § 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, shall be referred to the Initial Decision Maker for initial decision. The Architect/Engineer 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. 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 the Claim in whole or in part, (3) approve 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.

**§ 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.

**§ 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/Engineer, if the Architect/Engineer 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.

**§ 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.

**§ 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.

**§ 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. 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.

**§ 15.3.3** 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.

#### **§ 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.



## **BLINN COLLEGE DISTRICT Addendum to Vendor's Contract**

**Vendor Name: ("Vendor")**

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

The Blinn College District ("Blinn College") and the Vendor are this day entering into a contract and, for their mutual convenience, the parties are using the standard contract and/or purchase order form provided by the Vendor (referred to hereafter as the "Vendor's Contract Form").

This Addendum ("Addendum"), duly executed by the parties, is incorporated into the Vendor's Contract and made an integral part thereof. This Addendum and the Vendor's Contract Form shall be referred to hereafter collectively as the "Agreement."

The Vendor's Contract Form is, with the exceptions noted herein, generally acceptable to Blinn College District. Nonetheless, because certain standard clauses that may appear in the Vendor's Contract Form cannot be accepted by Blinn College District because of its status as an educational institution of the State of Texas and in consideration for the convenience of using provisions in the Vendor's Contract Form instead of negotiating a separate contract document, the parties agree that none of the provisions listed below, if they appear in the Vendor's Contract Form, shall have any effect or be enforceable against Blinn College District:

1. Requiring the Blinn College District to maintain any type of insurance either for the Blinn College District's benefit or for the Vendor's benefit.
2. Renewing or extending the Agreement beyond the contract term or automatically continuing the contract period from term to term.
3. Requiring or stating the terms of the Vendor's Contract Form shall prevail over the terms of the purchase order or this Addendum in the event of conflict.
4. Requiring the application of the law of any state other than Texas in interpreting or enforcing the Agreement, or resolving any dispute under the Agreement. The Agreement and the obligations of the parties shall be construed and enforced in accordance with the laws of the State of Texas.
5. Releasing the Vendor or any other entity or person from its legal liability, or limiting liability, for unlawful or negligent conduct or failure to comply with any duty recognized or imposed by applicable law.
6. Requiring any total or partial compensation or payment for lost profit or liquidated damages by Blinn College District if the Agreement is terminated before the end of the contract term.
7. Changing the time period within which claims can be made or actions can be brought under the laws of the State of Texas.
8. Binding Blinn College District to any arbitration provision or to the decision of any arbitration board, commission, panel or other entity.
9. Obligating Blinn College to pay costs of collection or attorneys' fees.
10. Requiring Blinn College District to provide warranties.
11. Obligating Blinn College District to indemnify, defend or hold harmless any party, unless allowed by the laws and Constitution of the State of Texas.

**Miscellaneous Provisions:**

**Use of Trademark:** Any Blinn College District trademark logo (institutional, division, department and/or athletic), verbiage, or wordmarks cannot be used in any capacity without permission from the Blinn College Office of Marketing and Communications. These items are property of the College and should not be placed on publications or in any medium (i.e., websites, social media, newsletters, fliers, posters, emails, etc). For questions concerning copyrighted materials and the use of Blinn trademark logos, verbiage and/or wordmarks, please contact the Office of Marketing and Communications at 979-830-4113.

**Copyrighted Material:** The Vendor represents that all content including but not limited to logos, trademarks, photos, illustrations, audio, video, writings, recordings, music, computer programs and other works which may be copyrighted that are provided, performed, presented or supplied by the Vendor are owned by the Vendor, or the Vendor has received explicit permission for use, and the material does not violate any United States copyright laws. The Vendor is responsible for acquiring all licenses and approvals for any copyrighted material used during the course of business with Blinn College District. If the Vendor takes photos or videos during the course of business with Blinn College District, the Vendor must receive permission from all individuals photographed or recorded to before the photos or videos are shown on any public platforms or webpages. This includes confirmation that each person in photos or videos that are going to be online understands that their face may be seen on the Internet. Vendor agrees to indemnify and hold Blinn College District harmless against all claims, including but not limited to claims of copyright or trademark infringement, violations of the rights of privacy, publicity, or defamation, arising out of use of the copyrighted material. Vendor's inclusion and use of the material performed, presented, provided, or supplied will not violate any rights of any kind or nature whatsoever of any third party.

Vendor shall provide proof of Copyright License Agreement to the Blinn College District upon the signing of this Agreement. Should Vendor fail to provide such proof, Blinn College District has full authority to terminate any and all Agreements with Vendor.

**Alternative Dispute Resolution:** The dispute resolution process provided in Chapter 2260, *Texas Government Code*, and the related rules adopted by the Texas Attorney General pursuant to Chapter 2260, shall be used by the Vendor and Blinn College to attempt to resolve any claim for breach of contract made by the Vendor that cannot be resolved in the ordinary course of business. The Vendor shall submit written notice of a claim of breach of contract under this Chapter to the Executive Vice Chancellor of Blinn College District, who shall examine the Vendor's claim and any counterclaim and negotiate with the Vendor in an effort to resolve the claim.

**Cloud Computing State Risk and Authorization Management Program:** Pursuant to Section 2054.0593(d)-(f) of the *Texas Government Code*, relating to cloud computing state risk and authorization management program, Vendor represents and warrants that it complies with the requirements of the state risk and authorization management program and Vendor agrees that throughout the term of the contract it shall maintain its certifications and comply with the program requirements in the performance of the contract.

**Mandatory Venue:** Venue for any suit filed against Blinn College District shall be in the county in which the primary office of the chief executive officer of Blinn College is located. This agreement and performance hereunder and all suits and special proceedings hereunder shall be construed in accordance with the laws of the State of Texas without regard to its choice of law or conflicts

of law provisions.

**Loss of Funding:** Performance by Blinn College District under the Agreement may be dependent upon the appropriation and allotment of funds from federally funded programs and/or by the Texas State Legislature (the "Legislature"). In the event a curtailment of federally funded programs occurs, or in the event state appropriations are unavailable, then Blinn College District will issue written notice to the Vendor and Blinn College District may terminate the Agreement without further duty or obligation hereunder. The Vendor acknowledges that appropriation of funds is beyond the control of Blinn College District.

**Payment:** All payment for goods and services shall be governed by Chapter 2251, *Texas Government Code*.

**Non-Waiver:** The Vendor expressly acknowledges Blinn College District is an educational institution of the State of Texas and nothing in the Agreement will be construed as a waiver or relinquishment by Blinn College District of its right to claim such exemptions, privileges, and immunities as may be provided by law. The failure to enforce, or any delay in the enforcement of, any privileges, rights, defenses, remedies, or immunities available to Blinn College District under this Contract or under applicable law shall not constitute a waiver of such privileges, rights, defenses, remedies, or immunities.

**Confidentiality:** Vendor acknowledges that Blinn College District is obligated to strictly comply with the Public Information Act, Chapter 552, *Texas Government Code*, in responding to any request for public information pertaining to this Agreement. The requirements of Subchapter J, Chapter 552, *Texas Government Code*, may apply to this bid or contract and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

**Force Majeure:** Neither party is required to perform any term, condition, or covenant of the Agreement, if performance is prevented or delayed by a natural occurrence, a fire, a pandemic, an act of God, an act of terrorism, or other similar occurrence, the cause of which is not reasonably within the control of such party and which by due diligence it is unable to prevent or overcome.

**Termination:** The Blinn College District may terminate, for convenience, its obligations under the Vendor's Contract by giving 30 days' written notice to the Vendor. The Blinn College District may, upon written notice of default or breach to the Vendor, immediately terminate the Vendor's Contract if Vendor fails to provide the goods or services contracted for according to the provisions of the Contract, or fails to comply with any terms or conditions of the Contract. If Blinn College District determines that an aspect of the Contract has materially or substantially changed, the Blinn College District may terminate the contract by providing 7 days' written notice to the Vendor.

Termination of the Vendor's Contract shall not release the Vendor from liability or obligation set forth in the contract that is expressly stated to survive termination, including, but not limited to, provisions regarding indemnification, records, audit, property rights, dispute resolution, and invoice and fee verifications. Termination is not an exclusive remedy, but exists in addition to any other rights and remedies provided in equity, under the laws of the State of Texas.

**Use of Purchase Orders:** To the degree that either or both of the parties hereto find it convenient to employ their standard forms of purchase order or acknowledgment of order in

administering the terms of this Agreement, it or they may do so but none of the terms and conditions printed or otherwise appearing on such form shall be applicable except to the extent that it specifies information required to be furnished by either party hereunder. The terms proposed by any such form are specifically objected to and shall not be used as a basis for any contract.

**Entire Agreement:** This Addendum and the Vendor's Contract Form constitute the entire Agreement between the parties and may not be waived or modified except by a written agreement signed by the parties.

**Savings Clause:** If a court of competent jurisdiction finds any provision of this Addendum and the Vendor's Contract Form illegal, ineffective or beyond contractual authority of either party, then the offending provision will be stricken and the remainder of the agreement between the parties will remain in effect.

**Notices:** All notices shall be mailed to the "Blinn College District, Executive Vice Chancellor, 902 College Avenue, Brenham, TX 77833".

To the extent the language in this Addendum conflicts with any language in the Vendor's Contract Form, the language in this Addendum will control.

IN WITNESS WHEREOF, the parties have caused this Addendum to be duly executed, intending thereby to be legally bound.

**BLINN COLLEGE DISTRICT**

**CONTRACTOR NAME**

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NAME: Mary Hensley, Ed.D.

NAME: \_\_\_\_\_

TITLE: Chancellor of the Blinn College District

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

## **EXHIBIT C**

### **DOCUMENT 008000 - SUPPLEMENTARY CONDITIONS**

- 1.1 SUPPLEMENTS
- A. The following supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction", AIA Document A201, **2017**. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provision of the Article, Paragraph, Subparagraph or Clause shall remain in effect.
- 1.2 REFERENCE TO DIVISION 01
- A. With regard to provisions of General Conditions related to project administrative or work related requirements of the Contract, some of those paragraphs are modified or deleted from General Conditions, and are specified in Division 01, "General Requirements" of the Specifications.

### **ARTICLE 1 - GENERAL PROVISIONS**

#### **§ 1.1 Basic Definitions**

Add the following new paragraphs:

##### **§ 1.1.9 Product**

The term "Product" as used in these Contract Documents includes materials, systems, and equipment.

##### **§ 1.1.10 Provide**

The term "provide" as used in this Project Manual means to furnish and install.

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

Add the following new subparagraphs:

**§ 1.2.4** The inter-relation of the Project Manual, the Drawings and the schedules is as follows: The Project Manual determines the quality, nature and setting of the several materials; the Drawings establish the quantities, dimensions and details; and the schedules give the location. The documents are to be considered as one and whatever is called for by any one shall be as binding as if called for by all.

**§ 1.2.5** Should the drawings disagree in themselves, or with the Project Manual, or if proprietary information disagrees with performance requirements in either the Drawings or the Project Manual, the better quality or greater quantity of the Work or materials shall be estimated upon, and unless otherwise ordered by the Architect in writing, shall be performed or furnished. Should discrepancies or doubt occur, do not proceed with the Work without clarification from the Architect. Contractor shall request clarification in sufficient time to avoid delays and increases in the contract sum.

Add the following new paragraphs:

##### **§ 1.9 Wage Rates**

The contractor shall not pay less than the wage scale of the various classes of labor as published in the Davis Bacon Act for Austin, Fayette, and Washington Counties; and as published by the Texas A&M University System for Brazos County. The specified wage rates are minimum rates only. The owner is not bound to pay any claims for additional compensation made by any contractor because the contractor pays wages in excess of the applicable minimum rate contained in the Contract.

### **ARTICLE 2 – LAWS GOVERNING CONSTRUCTION**

Modify the following paragraphs as follows:

#### **§ 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. 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 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.

Add following paragraphs:

**§ 2.6**The Owner qualifies for exemption from certain State and Local Sales and Use Taxes pursuant to the provisions of Tex. Tax Code, Chapter 151. The Contractor may claim exemption from payment of applicable State taxes by complying with such procedures as prescribed by State Comptroller of Public Accounts. Contractor shall not be entitled to reimbursement for taxes paid on items that are exempt from taxation.

## **ARTICLE 3 - CONTRACTOR**

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

Modify the following paragraphs as follows:

**§ 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. If a dimensional discrepancy exists, Contractor shall take field measurements required for proper fabrication and installation of work. Upon commencement of any item of work, Contractor shall be responsible for dimensions related to such item of Work and shall make any corrections necessary to make work properly fit at no additional cost to Owner. Before ordering any material or doing any work, Contractor shall verify dimensions and check conditions in order to assure himself that they properly reflect those on the Drawings. Any inconsistency shall be brought to attention of the Architect. In the event that discrepancies occur between ordered material and actual conditions, of which Architect was not notified beforehand, costs to correct such discrepancies shall be borne by Contractor.

### **§ 3.3 Supervision and Construction Procedures**

Add the following new paragraphs:

**§ 3.3.4** Supplement as provided in Division 1.

### **§ 3.4 Labor and Materials**

Add the following new paragraph:

**§ 3.4.4** 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 1. Refer to Division 01 for supplemental information.

### **§ 3.5 Warranty**

Add the following new paragraphs:

**§ 3.5.3** Supplement as provided in Division 01.

### **§ 3.8 Allowances**

Add the following new paragraphs:

**§ 3.8.4** Supplement as provided in Division 01.

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

Add the following new paragraphs:



§ 3.10.4 Supplement as provided in Division 01.

**§ 3.11 Documents and Samples at the Site**

Add the following new paragraphs:

§ 3.11.1 Supplement as provided in Division 01.

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

Add the following new paragraphs:

§ 3.12.11 Supplement as provided in Division 01.

**§ 3.13 Use of Site**

Add the following new paragraphs:

§ 3.13.1 Supplement as provided in Division 01.

**§ 3.14 Cutting and Patching**

Add the following new paragraphs:

§ 3.14.3 Supplement as provided in Division 01.

**§ 3.15 Cleaning Up**

Add the following new paragraphs:

§ 3.15.3 Supplement as provided in Division 01.

**§ 3.18 Indemnification**

Modify the following paragraphs as follows:

§ 3.18.1 To the fullest extent permitted by applicable law, the Contractor agrees to indemnify, defend and hold harmless Owner, its officers, trustees, agents, employees, and representatives from and against any liability, damages, costs, loss, expenses, claims, actions, proceedings, suits (including attorneys' fees, court costs and other expenses of suit), whether groundless or not, judgements and awards, arising out of, in connection with or related to the performance of Work by Contractor, its employees, any subcontractor, or other person performing services or work on behalf of any of them, including a default by Contractor under the provisions of the Contract Documents or a failure to obtain or maintain insurance required by the Contract Documents. This indemnification shall apply to, but not be limited to, any damage to property or injury (including death) to person (including any damage or injury to property or person or any employee of the Contractor, its subcontractors, Owner, or the Architect) which may occur or be alleged to have occurred in connection with the performance of this Contract. Contractor shall not be obligated to indemnify any of the indemnified parties against their own negligence; however, to the fullest extent permitted by applicable law, Contractor shall be required to defend the indemnified parties against liability, damages, costs, loss, expenses, claims, actions, proceedings, or suits (including attorneys' fees, court costs and other expenses of suit), whether groundless or not, for the bodily injury or death of an employee of the Contractor, its agent or its subcontractor of any tier, regardless of whether the action giving rise to such liability, damages, costs, loss, expenses, claim, action, proceeding or suit (including attorneys' fees, court costs and other expenses of suit), is founded in whole or in part upon the alleged negligence of one or more parties indemnified hereunder. The Contractor assumes all risk of damage or injury (including death) to the Contractor's own property or person or to the property or person of the Contractor's employees or subcontractors from any cause whatsoever. This indemnification shall survive termination of the Contract or completion by the Contractor of all of its obligations under this Contract, as to events arising prior to such termination or completion.

§ 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 this section shall not be limited by a limitation on amount or type of damages, insurance, compensation or benefits payable by or for the Contractor or a subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

Add the following new paragraphs:

**§ 3.18.3** The provisions of this indemnification and all other indemnification obligations set out in the Contract Documents, shall survive the termination of this Contract, howsoever caused, or completion of the Contract as to events occurring prior to such termination or completion, and no payment, partial payment, nor issuance of a certificate of Substantial Completion nor a certificate of Final Completion nor acceptance or occupancy in whole or in part of the Work shall waive or release any of the provisions of this section or of any other indemnification contained in the Contract Documents.

#### **ARTICLE 4 ARCHITECT**

Modify the following paragraphs as follows:

**§ 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**

Modify the following paragraphs as follows:

**§ 4.2.3** On the basis of the site visits, the Architect will keep the Owner 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 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.

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

##### **§ 6.2 Mutual Responsibility**

Add the following new paragraph

**§ 6.2.6** Coordinated construction work under this Contract includes, but not be limited to, providing concealed blocking as noted for attachment of separate contract items in locations necessary for the actual items to be installed. Providing proper dimensional coordination of separate contract supplied items for general construction work and trim that is to meet and/or adjoin Furniture, Fixtures, Equipment and Accessories.

**§ 6.2.7** It is a requirement of the Contractor's work schedule to provide the cooperation, coordination and exchange of information necessary for a timely execution of separate contract work.

#### **ARTICLE 7 - CHANGES IN THE WORK**

##### **§ 7.1 General**

Add the following new paragraphs:

**§ 7.1.4** Supplement as provided in Division 1.

**§ 7.1.5** Except as provided in this article, no oral statement, or direction of Architect or Owner shall be treated as a Change Order or entitle Contractor to an adjustment to the Contract Sum or the Contract Time.

**§ 7.1.6** Unit prices shall be inclusive of all costs including mark-up for overhead and profit and shall be applied to units of measure as defined in the Contract Documents for each category of Work.

#### **ARTICLE 8 - TIME**

##### **§ 8.3 Delays and Extensions of Time**

Modify the following paragraphs as follows:

**§ 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 ; 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.

Add the following new paragraphs

**§ 8.3.4** Apart from extension of time, no payment or claim for damages shall be made to Contractor as compensation for damages for any ordinary delays or hindrances from any cause whatsoever in the progress of the Work, notwithstanding whether such delay be avoidable or unavoidable.

**§ 8.3.5** In order to claim an inclement weather delay day, Contractor must:

- .1 Document, in writing, that the weather on the particular day was of such nature (rain, wind, snow, ice, and subsequent resultant effects) that it significantly impacted its ability to make progress on critical path work items. Inclement weather delay days will not be granted for weekends or holidays unless Contractor can demonstrate that it had been and intended to work on these days.
- .2 Submit such delay claims on a weekly basis, not more than 7 days following the day of occurrence.
- .3 Summarize the number of days claimed for the entire month accompanying each month's application for payment.

## **ARTICLE 9 - PAYMENTS AND COMPLETION**

### **§ 9.2 Schedule of Values**

Add the following new paragraphs:

**§ 9.2.1** Supplement as provided in Division 01.

### **§ 9.3 Applications for Payment**

Add the following new subparagraph:

**§ 9.3.4** Supplement as provided in Division 01.

**§ 9.3.5** Unless otherwise stated in the Owner/Contractor Agreement, the Owner will retain, until Final Payment, Five (5) percent of the amount due the Contractor on account of progress payments, payable 30 days after Substantial Completion and/or satisfactory evidence to the owner that all payments, bills, and claims have been paid.

Add following Sub-subparagraphs:

**§ 9.3.6** Monthly Applications for Payment shall include waivers of liens for all work included in previous months' application for payment. Waiver of Liens for subcontractors and materialmen shall be total amount paid prior to previous months' application for payment.

### **§ 9.5 Decisions to Withhold Certification**

Add the following new subparagraph:

**§ 9.5.1.8** Failure to submit written plan indicating action by Contractor to regain time schedule for completion of Work within Contract Time.

**§ 9.5.1.8** Failure to keep record documents current.

### **§ 9.8 Substantial Completion**

Add the following new paragraphs:

**§ 9.8.6** Supplement as provided in Division 01.

### **§ 9.10 Final Completion and Final Payment**

Modify the following paragraphs as follows:

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (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) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) 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 Contractor shall deliver 4 sets of the following items to the Owner before final payment will be made:

1. Other close-out submittals as specified in Division 01.
2. Project record documents as specified in Division 01.
3. Operations and maintenance data as specified in Division 01.
4. All warranties as required on specific products or portions of the Work, in format outlined in Division 01.
5. Spare parts, overages, and maintenance materials as outlined in Division 1 and described in the various technical sections.
6. Certificates of occupancy.
7. Copies of all inspection tags from authorities having jurisdiction.
8. Executed Certificate of Substantial Completion.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.2 Safety of Persons and Property**

Modify the following paragraphs as follows:

**§ 10.2.1** The Contractor shall be solely responsible 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.

## **ARTICLE 11 - INSURANCE AND BONDS**

### **§ 11.1 Contractor's Insurance and Bonds**

Add the following new Sub-subparagraphs:

**§ 11.1.5** Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

- .1 Premises Operations (including X-C-U).
- .2 Independent Contractor's Protective.
- .3 Products and Completed Operations.
- .4 Contractual including specified provisions for the Contractor's obligations under Paragraph 3.18.

- .5. Broad Form Property Damage including Completed Operations.
- .6 Personal Injury Liability with Employment Exclusion Deleted.
- .7 Owner's and Contractor's Protective.
- .8 Excess Umbrella.

§ 11.1.6 Insurance certificate(s) shall specify Owner as the certificate holder and (except for Workers' Compensation) as an additional insured.

## **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

### **§ 12.2 Correction of Work**

Modify the following paragraphs as follows:

§ 12.2.2.3 The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

## **ARTICLE 13 - MISCELLANEOUS PROVISIONS**

### **§ 13.1 Governing Law**

Modify the following paragraphs as follows:

#### **§ 13.1 Governing Law**

The Contract shall be governed by the law of the place where the Project is located.

### **§ 13.4 Tests and Inspections**

Add the following new paragraphs:

§ 13.4.6 Supplement as provided in Division 01.

## **ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **§ 14.1 Termination by the Contractor**

Modify the following paragraphs as follows:

§ 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 recover from the Owner payment for Work executed, as well as reasonable overhead and profit.

### **§ 14.2 Termination by the Owner for Cause**

Modify the following paragraphs as follows:

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly 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 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.

## **ARTICLE 15 CLAIMS AND DISPUTES**

### **§ 15.1 Claims**

Delete the following paragraphs:

§ 15.1.7 Waiver of Claims for Consequential Damages – Intentionally deleted

### **§ 15.2 Initial Decision**

Modify the following paragraphs as follows:

§ 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 therefore; 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.

Delete the following paragraphs:

**§ 15.2.6** Intentionally Deleted.

**§ 15.2.6.1** Intentionally Deleted.

**§ 15.3 Mediation**

**§ 15.4 Arbitration**

**END OF DOCUMENT**

DOCUMENT 002213 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1.1 INSTRUCTIONS TO BIDDERS

- A. Instructions to Bidders for Project consist of the following:
1. AIA Document A701, "Instructions to Bidders **a copy of which is bound in this Project Manual.**
  2. The following Supplementary Instructions to Bidders that modify and add to the requirements of the Instructions to Bidders.

1.2 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS, GENERAL

- A. The following supplements modify AIA Document A701, "Instructions to Bidders." Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, unaltered portions of the Instructions to Bidders shall remain in effect.

1.3 ARTICLE 2 - BIDDER'S REPRESENTATIONS

- A. Add Section 2.1.3.1:
1. 2.1.3.1 - The Bidder has investigated all required fees, permits, and regulatory requirements of authorities having jurisdiction and has properly included in the submitted bid the cost of such fees, permits, and requirements not otherwise indicated as provided by Owner.
- B. Add Section 2.1.5:
1. 2.1.5 - The Bidder is a properly licensed Contractor according to the laws and regulations of **City of Brenham** and meets qualifications indicated in the Procurement and Contracting Documents.
- C. Add Section 2.1.6:
1. 2.1.6 - The Bidder has incorporated into the Bid adequate sums for work performed by installers whose qualifications meet those indicated in the Procurement and Contracting Documents.

1.4 ARTICLE 3 - BIDDING DOCUMENTS

- A. 3.4 - Addenda:
1. Delete Section 3.4.3 and replace with the following:
    - a. 3.4.3 - Addenda may be issued at any time prior to the receipt of bids.

2. Add Section 3.4.4.1:
  - a. 3.4.4.1 - Owner may elect to waive the requirement for acknowledging receipt of 3.4.4 Addenda as follows:
    - 1) 3.4.4.1.1 - Information received as part of the Bid indicates that the Bid, as submitted, reflects modifications to the Procurement and Contracting Documents included in an unacknowledged Addendum.
    - 2) 3.4.4.1.2 - Modifications to the Procurement and Contracting Documents in an unacknowledged Addendum do not, in the opinion of Owner, affect the Contract Sum or Contract Time.

## 1.5 ARTICLE 4 - BIDDING PROCEDURES

### A. 4.1 - Preparation of Bids:

1. Add Section 4.1.1.1:
  - a. 4.1.1.1 - Printable electronic Bid Forms and related documents are available from **Owner**.
2. Add Section 4.1.8:
  - a. 4.1.8 - The Bid shall include unit prices when called for by the Procurement and Contracting Documents. Owner may elect to consider unit prices in the determination of award. Unit prices will be incorporated into the Contract.
3. Add Section 4.1.9:
  - a. 4.1.9 - Owner may elect to disqualify a bid due to failure to submit a bid in the form requested, failure to bid requested alternates or unit prices, failure to complete entries in all blanks in the Bid Form, or inclusion by the Bidder of any alternates, conditions, limitations or provisions not called for.
4. Add Section 4.1.10:
  - a. 4.1.10 - Bids shall include sales and use taxes. Contractors shall show separately with each monthly payment application the sales and use taxes paid by them and their subcontractors in the form indicated. Reimbursement of sales and use taxes, if any, shall be applied for by Owner for the sole benefit of Owner.
5. Add Section 4.1.11:
  - a. Bids shall not include Sales and Use Tax.

### B. 4.3 - Submission of Bids:

1. Add Section 4.3.1.2:



- a. 4.3.1.2 - Include Bidder's Contractor License Number applicable in Project jurisdiction on the face of the sealed bid envelope.

C. 4.4 - Modification or Withdrawal of Bids:

1. Add the following sections to 4.4.2:

- a. 4.4.2.1 - Such modifications to or withdrawal of a bid may only be made by persons authorized to act on behalf of the Bidder. Authorized persons are those so identified in the Bidder's corporate bylaws, specifically empowered by the Bidder's charter or similar legally binding document acceptable to Owner, or by a power of attorney, signed and dated, describing the scope and limitations of the power of attorney. Make such documentation available to Owner at the time of seeking modifications or withdrawal of the Bid.
- b. 4.4.2.2 - Owner will consider modifications to a bid written on the sealed bid envelope by authorized persons when such modifications comply with the following: the modification is indicated by a percent or stated amount to be added to or deducted from the Bid; the amount of the Bid itself is not made known by the modification; a signature of the authorized person, along with the time and date of the modification, accompanies the modification. Completion of an unsealed bid form, awaiting final figures from the Bidder, does not require power of attorney due to the evidenced authorization of the Bidder implied by the circumstance of the completion and delivery of the Bid.

D. 4.5 - Break-Out Pricing Bid Supplement:

1. Add Section 4.5:

- a. 4.5 - Provide detailed cost breakdowns **on forms provided** no later than two business days following Architect's request.

E. 4.6 - Subcontractors, Suppliers, and Manufacturers List Bid Supplement:

1. Add Section 4.6:

- a. 4.6 - Provide list of major subcontractors, suppliers, and manufacturers furnishing or installing products **on forms provided** no later than **two** business days following Architect's request. Include those subcontractors, suppliers, and manufacturers providing work totaling **three** percent or more of the Bid amount. Do not change subcontractors, suppliers, and manufacturers from those submitted without approval of Architect.

1.6 ARTICLE 5 - CONSIDERATION OF BIDS

A. 5.2 - Rejection of Bids:

1. Add Section 5.2.1:

- a. 5.2.1 - Owner reserves the right to reject a bid based on Owner's and Architect's evaluation of qualification information submitted following opening of bids. Owner's evaluation of the Bidder's qualifications will include: status of licensure and record of compliance with licensing requirements, record of quality of completed work, record of Project completion and ability to complete, record of financial management including financial resources available to complete Project and record of timely payment of obligations, record of Project site management including compliance with requirements of authorities having jurisdiction, record of and number of current claims and disputes and the status of their resolution, and qualifications of the Bidder's proposed Project staff and proposed subcontractors.

1.7 ARTICLE 6 - POSTBID INFORMATION

A. 6.3 - Submittals:

1. Add Section 6.3.1.4:

- a. 6.3.1.4 - Submit information requested in Sections 6.3.1.1, 6.3.1.2, and 6.3.1.3 no later than **two** business days following Architect's request.

1.8 ARTICLE 7 - PERFORMANCE BOND AND PAYMENT BOND

A. 7.1 - Bond Requirements:

1. Add Section 7.1.1.1:

- a. 7.1.1.1 - Both a Performance Bond and a Payment Bond will be required, each in an amount equal to 100 percent of the Contract Sum.

B. 7.2 - Time of Delivery and Form of Bonds:

1. Delete the first sentence of Section 7.2.1 and insert the following:

- a. The Bidder shall deliver the required bonds to Owner no later than **10** days after the date of Notice of Intent to Award and no later than the date of execution of the Contract, whichever occurs first. Owner may deem the failure of the Bidder to deliver required bonds within the period of time allowed a default.

2. Delete Section 7.2.3 and insert the following:

- a. 7.2.3 - Bonds shall be executed and be in force on the date of the execution of the Contract.

1.9 ARTICLE 9 - EXECUTION OF THE CONTRACT

A. Add Article 9:

1. 9.1.1 - Subsequent to the Notice of Intent to Award, and within **3** days after the prescribed Form of Agreement is presented to the Awardee for signature, the Awardee shall execute and deliver the Agreement to Owner, in such number of counterparts as Owner may require.
2. 9.1.2 - Owner may deem as a default the failure of the Awardee to execute the Contract and to supply the required bonds when the Agreement is presented for signature within the period of time allowed.
3. 9.1.3 - Unless otherwise indicated in the Procurement and Contracting Documents or the executed Agreement, the date of commencement of the Work shall be the date of the executed Agreement.
4. 9.1.4 - In the event of a default, Owner may declare the amount of the Bid security forfeited and elect to either award the Contract to the next responsible bidder or re-advertise for bids.

END OF DOCUMENT 002213

DOCUMENT 002513 - PREBID MEETINGS

1.1 PREBID MEETING

A. **Owner** will conduct a Prebid meeting as indicated below:

1. Meeting Date: January 7, 2025
2. Meeting Time: 2:30pm local time.
3. Location: Blinn-Brenham Campus, Old Main Building, 806 College Avenue, Classroom 302, Brenham, TX 77833

B. Attendance:

1. Prime Bidders: Attendance at Prebid meeting is highly **recommended**.
2. Subcontractors: Attendance at Prebid meeting is recommended.

C. Bidder Questions: Submit written questions to be addressed at Prebid meeting minimum of **two** business days prior to meeting.

D. Agenda: Prebid meeting agenda will include review of topics that may affect proper preparation and submittal of bids, including the following:

1. Procurement and Contracting Requirements:
  - a. Advertisement for Bids.
  - b. Instructions to Bidders.
  - c. Bidder Qualifications.
  - d. Bonding.
  - e. Insurance.
  - f. Bid Security.
  - g. Bid Form and Attachments.
  - h. Bid Submittal Requirements.
  - i. Bid Submittal Checklist.
  - j. Notice of Award.
2. Communication during Bidding Period:
  - a. Obtaining documents.
  - b. Access to Project Web site.
  - c. Bidder's Requests for Information.
  - d. Bidder's Substitution Request/Prior Approval Request.
  - e. Addenda.
3. Contracting Requirements:
  - a. Agreement.
  - b. The General Conditions.
  - c. The Supplementary Conditions.
  - d. Other Owner requirements.

4. Construction Documents:
    - a. Scopes of Work.
    - b. Temporary Facilities.
    - c. Use of Site.
    - d. Work Restrictions.
    - e. Alternates, Allowances, and Unit Prices.
    - f. Substitutions following award.
  5. Separate Contracts:
    - a. Work by Owner.
    - b. Work of Other Contracts.
  6. Schedule:
    - a. Project Schedule.
    - b. Contract Time.
    - c. Liquidated Damages.
    - d. Other Bidder Questions.
  7. Site/facility visit or walkthrough.
  8. Post-Meeting Addendum.
- E. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes to attendees. Minutes of meeting are issued as Available Information and do not constitute a modification to the Procurement and Contracting Documents. Modifications to the Procurement and Contracting Documents are issued by written Addendum only.
1. Sign-in Sheet: Minutes will include list of meeting attendees.

END OF DOCUMENT 002513

## DOCUMENT 002600 - PROCUREMENT SUBSTITUTION PROCEDURES

### 1.1 DEFINITIONS

- A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.
- B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

### 1.2 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

### 1.3 PROCUREMENT SUBSTITUTIONS

- A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.
- B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
  - 1. Extensive revisions to the Contract Documents are not required.
  - 2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
  - 3. The request is fully documented and properly submitted.

### 1.4 SUBMITTALS

- A. Procurement Substitution Request: Submit to **Owner**. Procurement Substitution Request must be made in writing **by prime contract Bidder only** in compliance with the following requirements:
  - 1. Requests for substitution of materials and equipment will be considered if received no later than **10** days prior to date of bid opening.

2. Submittal Format: Submit **three** copies of each written Procurement Substitution Request, using **CSI Substitution Request Form 1.5C**.
3. Submittal Format: Submit Procurement Substitution Request, using format provided on Project Web site.
  - a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.
  - b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
    - 1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
    - 2) Copies of current, independent third-party test data of salient product or system characteristics.
    - 3) Samples where applicable or when requested by Architect.
    - 4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    - 5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
    - 6) Research reports, where applicable, evidencing compliance with building code in effect for Project, from **ICC-ES**.
    - 7) 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, which will become necessary to accommodate the proposed substitute.
  - c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
  - d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:

1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

END OF DOCUMENT 002600

DOCUMENT 003113 - PRELIMINARY SCHEDULE

1.1 PROJECT SCHEDULE

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but do not affect Contract Time requirements. This Document and its attachments are not part of the Contract Documents.

B. Available Project information includes the following:

1. Project Schedule.

Project schedule including design and construction milestones:

1. 12-17-24: Drawings and Specifications issued for pricing
2. 07-07-25: Pre-Bid Meeting
3. 01-13-25: Issue (last) Addendum
4. 01-16-25: Proposals Due
5. 01-2025: Submit Agenda Item to Administration
6. 02-18-25: Board Meeting
7. 05-15-25: Commencement of Construction
8. 08-01-25: Substantial Completion

C. Related Requirements:

1. **Document 004113 "Bid Form - Stipulated Sum (Single-Prime Contract)** for Contract Time.
2. Section 013200 "Construction Progress Documentation" for Contractor's construction schedule requirements.

END OF DOCUMENT 003113



DOCUMENT 00411 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

- A. Bidder: \_\_\_\_\_.
- B. Project Name: Blinn Brenham Mechanical FY25 R&R Projects – Melcher Hall & BCPA Phase 2 Water Heaters
- C. Project Location: 902 College Avenue, Brenham, TX 77833
- D. Owner: Blinn College District
- E. Architect: Ramirez-Simon Engineering, LLC
- F. Architect Project Number: 1540.

1.2 CERTIFICATIONS AND BASE BID

- A. **Base Bid, Single-Prime (All Trades) Contract: Blinn College Park Apartments (BCPA) Phase 2 Water Heaters:** The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Ramirez-Simon Engineering, LLC and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

- 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
- 2. The above amount shall include the sum of Ten Thousand Dollars and Zero Cents (\$10,000.00) for use as Owner's Contingency.
- 3. Lead time for materials: \_\_\_\_\_ calendar days
- 4. Construction Schedule in calendar days to complete from start of 5/12/25: \_\_\_\_\_ calendar days

- B. **Base Bid, Single-Prime (All Trades) Contract: Melcher Hall Water Heaters and Install OFCI Storage Tank:** The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Ramirez-Simon Engineering, LLC and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

- 1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

2. The above amount shall include the sum of Twelve Thousand Five Hundred Dollars and Zero Cents (\$12,500.00) for use as Owner's Contingency.
3. Lead time for materials: \_\_\_\_\_ calendar days
4. Construction Schedule in calendar days to complete from start of 5/12/25: \_\_\_\_\_ calendar days

### 1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within [10] days after a written Notice of Award, if offered within [60] days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:
  1. \_\_\_\_\_ Dollars (\$\_\_\_\_\_).
- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

### 1.4 SUBCONTRACTORS AND SUPPLIERS

- A. The following companies shall execute subcontracts for the portions of the Work indicated:
  1. Concrete Work: \_\_\_\_\_.
  2. Roofing Work: \_\_\_\_\_.
  3. Plumbing Work: \_\_\_\_\_.
  4. HVAC Work: \_\_\_\_\_.
  5. Electrical Work: \_\_\_\_\_.

### 1.5 TIME OF COMPLETION

- A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect and shall fully complete the Work within by August 1, 2025.

### 1.6 ACKNOWLEDGEMENT OF ADDENDA

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:
  1. Addendum No. 1, dated \_\_\_\_\_.

2. Addendum No. 2, dated \_\_\_\_\_.
3. Addendum No. 3, dated \_\_\_\_\_.
4. Addendum No. 4, dated \_\_\_\_\_.

1.7 BID SUPPLEMENTS

- A. The following supplements are a part of this Bid Form and are attached hereto.
1. Bid Form Supplement - Bid Bond Form (AIA Document A310).

1.8 CONTRACTOR'S LICENSE

- A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in **City of Brenham** and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.9 SUBMISSION OF BID

- A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2025.
- B. Submitted By: \_\_\_\_\_(Name of bidding firm or corporation).
- C. Authorized Signature: \_\_\_\_\_(Handwritten signature).
- D. Signed By: \_\_\_\_\_(Type or print name).
- E. Title: \_\_\_\_\_(Owner/Partner/President/Vice President).
- F. Witness By: \_\_\_\_\_(Handwritten signature).
- G. Attest: \_\_\_\_\_(Handwritten signature).
- H. By: \_\_\_\_\_(Type or print name).
- I. Title: \_\_\_\_\_(Corporate Secretary or Assistant Secretary).
- J. Street Address: \_\_\_\_\_.
- K. City, State, Zip: \_\_\_\_\_.
- L. Phone: \_\_\_\_\_.
- M. License No.: \_\_\_\_\_.
- N. Federal ID No.: \_\_\_\_\_(Affix Corporate Seal Here).

END OF DOCUMENT 004113

DOCUMENT 004313 - BID SECURITY FORMS

1.1 BID FORM SUPPLEMENT

- A. A completed bid bond form is required to be attached to the Bid Form.

1.2 BID BOND FORM

- A. AIA Document A310, "Bid Bond," is the recommended form for a bid bond. A bid bond acceptable to Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.
- B. Copies of AIA standard forms may be obtained from The American Institute of Architects; [www.aia.org/contractdocs/purchase/index.htm](http://www.aia.org/contractdocs/purchase/index.htm); email: [docspurchases@aia.org](mailto:docspurchases@aia.org); (800) 942-7732.

END OF DOCUMENT 004313

DOCUMENT 004373 - PROPOSED SCHEDULE OF VALUES FORM

1.1 BID FORM SUPPLEMENT

- A. A completed Proposed Schedule of Values form is required to be attached to the Bid Form.

1.2 PROPOSED SCHEDULE OF VALUES FORM

- A. Proposed Schedule of Values Form: Provide a breakdown of the bid amount, including alternates, in enough detail to facilitate continued evaluation of bid. Coordinate with the Project Manual table of contents. Provide multiple line items for principal material and subcontract amounts in excess of **five** percent of the Contract Sum.
- B. Arrange schedule of values consistent with format of **AIA Document G703**.
  - 1. Copies of AIA standard forms may be obtained from the American Institute of Architects; <http://www.aia.org/contractdocs/purchase/index.htm>; [docspurchases@aia.org](mailto:docspurchases@aia.org); (800) 942-7732.

END OF DOCUMENT 004373

DOCUMENT 004393 - BID SUBMITTAL CHECKLIST

1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Prime Contract: \_\_\_\_\_.
- C. Project Name: Blinn Mechanical Projects – Brenham - Melcher + BCPA2
- D. Project Location: 902 College Avenue, Brenham, TX 77833
- E. Owner: Blinn College District
- F. Owner Project Number: P2500887
- G. Architect: Ramirez-Simon Engineering, LLC

1.2 BIDDER'S CHECKLIST

- A. In an effort to assist the Bidder in properly completing all documentation required, the following checklist is provided for the Bidder's convenience. The Bidder is solely responsible for verifying compliance with bid submittal requirements.
- B. Attach this completed checklist to the outside of the Submittal envelope.
  - 1. Used the Bid Form provided in the Project Manual.
  - 2. Prepared the Bid Form as required by the Instructions to Bidders.
  - 3. Indicated on the Bid Form the Addenda received.
  - 4. Attached to the Bid Form: Proposed Schedule of Values Form.
  - 5. Attached to the Bid Form: Bid Bond OR a certified check for the amount required.
  - 6. Bid envelope shows name and address of the Bidder.
  - 7. Bid envelope shows the Bidder's Contractor's License Number.
  - 8. Bid envelope shows name of Project being bid.
  - 9. Bid envelope shows time and day of Bid Opening.
  - 10. Verified that the Bidder can provide executed Performance Bond and Labor and Material Bond.
  - 11. Verified that the Bidder can provide Certificates of Insurance in the amounts indicated.

END OF DOCUMENT 004393

DOCUMENT 006000 - FORMS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

- A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:
1. AIA Document A101, "Standard Form of Agreement between Owner and Contractor, Stipulated Sum."
    - a. The General Conditions for Project are AIA Document A201, "General Conditions of the Contract for Construction."
  2. The General Conditions are **included in the Project Manual**.
  3. The Supplementary Conditions for Project **are separately prepared and included in the Project Manual**.
  4. Owner's document(s) bound following this Document.

1.2 ADMINISTRATIVE FORMS

- A. Administrative Forms: Additional administrative forms are specified in Division 01 General Requirements.
- B. Copies of AIA standard forms may be obtained from the American Institute of Architects; <http://www.aia.org/contractdocs/purchase/index.htm>; [docspurchases@aia.org](mailto:docspurchases@aia.org); (800) 942-7732.
- C. Preconstruction Forms:
1. Form of Performance Bond and Labor and Material Bond: AIA Document A312, "Performance Bond and Payment Bond."
  2. Form of Certificate of Insurance: AIA Document G715, "Supplemental Attachment for ACORD Certificate of Insurance 25-S."
- D. Information and Modification Forms:
1. Form for Requests for Information (RFIs): AIA Document G716, "Request for Information (RFI)."
  2. Form of Request for Proposal: AIA Document G709, "Work Changes Proposal Request."
  3. Change Order Form: AIA Document G701, "Change Order."
  4. Form of Architect's Memorandum for Minor Changes in the Work: AIA Document G707, "Architect's Supplemental Instructions."
  5. Form of Change Directive: AIA Document G714, "Construction Change Directive."
- E. Payment Forms:
1. Schedule of Values Form: AIA Document G703, "Continuation Sheet."

2. Payment Application: AIA Document G702/703, "Application and Certificate for Payment and Continuation Sheet."
3. Form of Contractor's Affidavit: AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
4. Form of Affidavit of Release of Liens: AIA Document G706A, "Contractor's Affidavit of Payment of Release of Liens."
5. Form of Consent of Surety: AIA Document G707, "Consent of Surety to Final Payment."

END OF DOCUMENT 006000



## SECTION 011000 - SUMMARY

### 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. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

- B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

#### 1.3 PROJECT INFORMATION

- A. Project Identification: Blinn Brenham Mechanical FY25 R&R Projects – Melcher Hall & BCPA Phase 2 Water Heaters
- B. Project Location: Blinn College Brenham Campus; 902 College Avenue, Brenham, TX 77833
- C. Owner: Blinn College District
  1. Owner's Representative: Jessica Gaida, [Jessica.Gaida@blinn.edu](mailto:Jessica.Gaida@blinn.edu), Director Facilities, Planning, and Construction
- D. Architect: Ramirez-Simon Engineering, LLC.
  1. Architect's Representative: Kristen Owen, PE, [klowen@ramirez-simon.com](mailto:klowen@ramirez-simon.com), Project Manager

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Melcher Hall -Replacing the existing boiler in Attic Space.
2. BCPA2 -Replacing the boilers and providing recirculation pumps for each new boiler assembly. Providing heat tracing for exposed piping.

B. Type of Contract:

1. Project will be constructed under a single prime contract.
  - a. AIA A101-2017 – Owner and Contractor Standard Form of Agreement Between Owner and Contractor
  - b. AIA A201-2017 – General Conditions of the Contract for Construction

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- C. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  1. Driveways, Walkways 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 by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. 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. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than **72** hours' notice to Owner of activities that will affect Owner's operations.

#### 1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00am a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
  1. Weekend Hours: As coordinated with Owner.
  2. Early Morning Hours: As coordinated with Owner.
  3. Hours for Utility Shutdowns: As coordinated with Owner.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  1. Notify Owner not less than two days in advance of proposed utility interruptions.
  2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  1. Notify Owner not less than two days in advance of proposed disruptive operations.
  2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted.
- F. Smoking and Controlled Substances: Use of tobacco products and other controlled substances is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

#### 1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. 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. Imperative mood and streamlined language are generally used in the Specifications. 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.
  2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
  2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
  3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

## SECTION 012100 - ALLOWANCES

### 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. Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Contingency allowances.

#### 1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

#### 1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

#### 1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

#### 1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency (AUC) allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

##### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

##### 3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Melcher Hall - Base Bid Owner's Contingency Allowance: Include the sum of Twelve Thousand Five Hundred Dollars and Zero Cents (\$12,500.00).

- B. Allowance No. 2: BCPA Phase 2 - Base Bid Owner's Contingency Allowance: Include the sum of Ten Thousand Dollars and Zero Cents (\$10,000.00).

END OF SECTION 012100

## SECTION 012500 - SUBSTITUTION PROCEDURES

### 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. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
  - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

#### 1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

#### 1.4 ACTION SUBMITTALS

- A. 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. Substitution Request Form: Use CSI Form 13.1A.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions 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. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
  - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - k. Cost information, including a proposal of change, if any, in the Contract Sum.
  - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - m. 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.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 7 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
  - 1. 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:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.
    - h. 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.
- B. Substitutions for Convenience: Not allowed.

## PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

## SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

### 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. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### 1.3 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."

#### 1.4 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. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after 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 costs of labor and supervision directly attributable to the change.
    - d. 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.

- e. Quotation Form: Use CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

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 costs of labor and supervision directly attributable to the change.
5. 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.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

## 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

## 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701

## 1.7 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 012600

## SECTION 012900 - PAYMENT PROCEDURES

### 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. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
  - 2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 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 for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
  4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
  5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Section 011000 "Summary."
- B. Format and Content: Use 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 schedule of values consistent with format of AIA Document G703.
  3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
  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.
    - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
  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.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial 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 Times: Submit Application for Payment to Architect by the 20th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
  1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application for Payment Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included in Project Manual.
- F. Application for Payment Forms: Use forms acceptable to Architect and Owner for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- G. 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 for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- H. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.



1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- I. Transmittal: Submit one electronic (PDF) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
- J. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities 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 conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- K. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
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 conditional 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 conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.
- L. 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. Submittal schedule (preliminary if not final).
  5. List of Contractor's staff assignments.
  6. List of Contractor's principal consultants.
  7. Copies of building permits.
  8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  9. Initial progress report.
  10. Report of preconstruction conference.
  11. Certificates of insurance and insurance policies.
  12. Performance and payment bonds.
- M. Application for Payment at Substantial Completion: After Architect issues 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 Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- N. Final Payment Application: After completing Project closeout requirements, 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.
  9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

## SECTION 013100 - 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. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project Web site.
  - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
  - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
  - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.
  - 4. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

#### 1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. 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. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, on Project Web site, and by each temporary telephone. Keep list current at all times.

#### 1.5 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
  - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716 or Software-generated form with substantially the same content as indicated above, acceptable to Architect.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use CSI Log Form 13.2 [or use software log that is part of Project Web site. Include the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

#### 1.6 PROJECT WEB SITE (IF APPLICABLE)

- A. Provide, administer, and use Project Web site for purposes of hosting and managing project communication and documentation until Final Completion. Project Web site shall include the following functions:
1. Project directory.
  2. Project correspondence.
  3. Meeting minutes.
  4. Contract modifications forms and logs.
  5. RFI forms and logs.
  6. Task and issue management.
  7. Photo documentation.
  8. Schedule and calendar management.
  9. Submittals forms and logs.
  10. Payment application forms.
  11. Drawing and specification document hosting, viewing, and updating.
  12. Online document collaboration.
  13. Reminder and tracking functions.
  14. Archiving functions.
- B. Provide up to seven Project Web site user licenses for use of the Owner, Architect, and Architect's consultants. Provide four hours of software training at Architect's office for Project Web site users.
- C. On completion of Project, provide one complete archive copy(ies) of Project Web site files to Owner and to Architect in a digital storage format acceptable to Architect.

#### 1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: 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.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct 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.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned

parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing (if applicable)
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Lines of communications.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for RFIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Preparation of record documents.
    - m. Use of the premises.
    - n. Work restrictions.
    - o. Working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for moisture and mold control.
    - s. Procedures for disruptions and shutdowns.
    - t. Construction waste management and recycling.
    - u. Parking availability.
    - v. Office, work, and storage areas.
    - w. Equipment deliveries and priorities.
    - x. First aid.
    - y. Security.
    - z. Progress cleaning.
  4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- 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. Advise Architect of scheduled 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 RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.

- g. Submittals.
  - h. Review of mockups.
  - i. Possible conflicts.
  - j. Compatibility requirements.
  - k. Time schedules.
  - l. Weather limitations.
  - m. Manufacturer's written instructions.
  - n. Warranty requirements.
  - o. Compatibility of materials.
  - p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  - 5. 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.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than **60** days prior to the scheduled date of Substantial Completion.
- 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  - 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.



- h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - i. Submittal procedures.
    - j. Coordination of separate contracts.
    - k. Owner's partial occupancy requirements.
    - l. Installation of Owner's furniture, fixtures, and equipment.
    - m. Responsibility for removing temporary facilities and controls.
  4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at weekly intervals.
  1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to 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.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Resolution of BIM component conflicts.
      - 4) Status of submittals.
      - 5) Deliveries.
      - 6) Off-site fabrication.
      - 7) Access.
      - 8) Site utilization.
      - 9) Temporary facilities and controls.
      - 10) Progress cleaning.
      - 11) Quality and work standards.
      - 12) Status of correction of deficient items.
      - 13) Field observations.
      - 14) Status of RFIs.
      - 15) Status of proposal requests.
      - 16) Pending changes.
      - 17) Status of Change Orders.

- 18) Pending claims and disputes.
  - 19) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

## SECTION 013200 - 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. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Contractor's construction schedule.
  - 2. Construction schedule updating reports.
  - 3. Daily construction reports.
  - 4. Material location reports.
  - 5. Site condition reports.
- B. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
  - 2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

#### 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 Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time belongs to Owner.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file, where indicated.
  - 2. PDF electronic file.
- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
  - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
  - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
  - 3. Total Float Report: List of all activities sorted in ascending order of total float.
  - 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- E. Construction Schedule Updating Reports: Submit with Applications for Payment.
- F. Daily Construction Reports: Submit at monthly intervals.

- G. Material Location Reports: Submit at monthly intervals.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.
- I. Special Reports: Submit at time of unusual event.
- J. Qualification Data: For scheduling consultant.

#### 1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

#### 1.6 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from entities involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice of Award to date of final completion].
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than **20** days, unless specifically allowed by Architect.
  - 2. Procurement Activities: Include procurement process activities for the following 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.
    - a. Boilers
    - b. Circulation Pumps.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Engineer and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
  6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
  2. Work under More Than One Contract: Include a separate activity for each contract.
  3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  6. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Environmental control.
  7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Subcontract awards.
    - b. Submittals.
    - c. Purchases.
    - d. Mockups.
    - e. Fabrication.
    - f. Sample testing.
    - g. Deliveries.
    - h. Installation.
    - i. Tests and inspections.
    - j. Adjusting.
    - k. Curing.
    - l. Building flush-out.
    - m. Startup and placement into final use and operation.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
  - a. Structural completion.
  - b. Temporary enclosure and space conditioning.
  - c. Permanent space enclosure.
  - d. Completion of mechanical installation.
  - e. Completion of electrical installation.
  - f. 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.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is **14** or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within **15** days of date established for the Notice of Award. Base schedule on the startup construction schedule and additional information 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 three months or longer to complete, indicate an estimated completion percentage in **10** percent increments within time bar.

## 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice of Award. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for the Notice of Award.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
  - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Fabrication.
    - f. Utility interruptions.
    - g. Installation.
    - h. Work by Owner that may affect or be affected by Contractor's activities.
    - i. Testing and commissioning.
    - j. Punch list and final completion.
    - k. Activities occurring following final completion.
  - 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  - 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.



4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
  - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
  1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Main events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.
  7. Changes in the Contract Time.

## 2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site.
  4. Equipment at Project site.
  5. Material deliveries.
  6. High and low temperatures and general weather conditions, including presence of rain or snow.
  7. Accidents.

8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At **monthly** intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit 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.

## 2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within **one** day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.

1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
  2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. 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 final completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, 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 013200

## SECTION 013300 - SUBMITTAL PROCEDURES

### 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. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
  - 2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
  - 3. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
  - 4. Format: Arrange the following information in a tabular format:
    - a. Scheduled date for first submittal.
    - b. Specification Section number and title.
    - c. Submittal category: Action; informational.
    - d. Name of subcontractor.
    - e. Description of the Work covered.
    - f. Scheduled date for Architect's final release or approval.
    - g. Scheduled date of fabrication.
    - h. Scheduled dates for purchasing.
    - i. Scheduled dates for installation.
    - j. Activity or event number.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will [ **not** ] be provided by Architect for Contractor's use in preparing submittals.
  - 1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing submittals.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

- b. Contractor shall execute a data licensing agreement in the form of **Agreement form acceptable to Owner and Engineer.**
- 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. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  4. 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. **Engineer reserves** the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on **Engineer's** receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow **5** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. **Engineer** will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow **5** days for review of each resubmittal.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately **6 by 8 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 for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. Submittal number or other unique identifier, including revision identifier.

- 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
  - j. Number and title of appropriate Specification Section.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Other necessary identification.
4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will **return without review** submittals received from sources other than Contractor.
- a. Transmittal Form for Paper Submittals: Use **AIA Document G810**.
  - b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
    - 1) Project name.
    - 2) Date.
    - 3) Destination (To:).
    - 4) Source (From:).
    - 5) Name and address of Architect.
    - 6) Name of Construction Manager.
    - 7) Name of Contractor.
    - 8) Name of firm or entity that prepared submittal.
    - 9) Names of subcontractor, manufacturer, and supplier.
    - 10) Category and type of submittal.
    - 11) Submittal purpose and description.
    - 12) Specification Section number and title.
    - 13) Specification paragraph number or drawing designation and generic name for each of multiple items.
    - 14) Drawing number and detail references, as appropriate.
    - 15) Indication of full or partial submittal.
    - 16) Transmittal number, **numbered consecutively**.
    - 17) Submittal and transmittal distribution record.
    - 18) Remarks.
    - 19) Signature of transmitter.
- E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use **electronic form** acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Names of subcontractor, manufacturer, and supplier.
    - h. Category and type of submittal.
    - i. Submittal purpose and description.
    - j. Specification Section number and title.
    - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - l. Drawing number and detail references, as appropriate.
    - m. Location(s) where product is to be installed, as appropriate.
    - n. Related physical samples submitted directly.
    - o. Indication of full or partial submittal.
    - p. Transmittal number, **numbered consecutively**.
    - q. Submittal and transmittal distribution record.
    - r. Other necessary identification.
    - s. Remarks.
  5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
    - a. Project name.
    - b. Number and title of appropriate Specification Section.
    - c. Manufacturer name.
    - d. Product name.
- F. Options: Identify options requiring selection by Architect.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract



Documents, including minor variations and limitations. Include same identification information as related submittal.

- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- 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: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  - 1. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  - 2. Certificates and Certifications Submittals: Provide a 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.
    - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- 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 published 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 catalog cuts.
  - b. Manufacturer's product specifications.
  - c. Standard color charts.
  - d. Statement of compliance with specified referenced standards.
  - e. Testing by recognized testing agency.
  - f. Application of testing agency labels and seals.
  - g. Notation of coordination requirements.
  - h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
- a. Wiring diagrams showing factory-installed wiring.
  - b. Printed performance curves.
  - c. Operational range diagrams.
  - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
- a. PDF electronic file.
- 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, **unless submittal based on Engineer's digital data drawing files is otherwise permitted.**
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
  2. 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 42 inches**
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:

- a. Generic description of Sample.
  - b. Product name and name of manufacturer.
  - c. Sample source.
  - d. Number and title of applicable Specification Section.
  - e. Specification paragraph number and generic name of each item.
3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. 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.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. 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. Number of Samples: Submit **one** full set(s) 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.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: 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. Number of Samples: Submit **three** sets of Samples. Architect will retain **two** Sample sets; remainder will be returned.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least **three** sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
  5. Submit product schedule in the following format:
    - a. PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. 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.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit 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.
- W. Field Test Reports: Submit written reports 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 in the Contract Documents.
- X. Design Data: Prepare and submit 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.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. 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. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

## SECTION 013516 - ALTERATION PROJECT PROCEDURES

### 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 special procedures for alteration work.

#### 1.3 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.

- L. Strip: To remove existing finish down to base material unless otherwise indicated.

#### 1.4 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.
  - 1. Schedule construction operations in sequence required to obtain best Work results.
  - 2. Coordinate sequence of alteration work activities to accommodate the following:
    - a. Owner's continuing occupancy of portions of existing building.
    - b. Owner's partial occupancy of completed Work.
    - c. Other known work in progress.
    - d. Tests and inspections.
  - 3. Detail sequence of alteration work, with start and end dates.
  - 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
  - 5. Use of elevator and stairs.

#### 1.5 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before starting alteration work, **conduct** conference at **Project site**.
  - 1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, specialists, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
  - 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
    - a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
    - b. Fire-prevention plan.
    - c. Governing regulations.
    - d. Areas where existing construction is to remain and the required protection.
    - e. Hauling routes.
    - f. Sequence of alteration work operations.
    - g. Storage, protection, and accounting for salvaged and specially fabricated items.
    - h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
    - i. Qualifications of personnel assigned to alteration work and assigned duties.
    - j. Requirements for extent and quality of work, tolerances, and required clearances.



- k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.
  3. Reporting: **Record** conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.
- B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at **weekly** intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner, Architect, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to alteration work.
  2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
    - a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
    - b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to 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 review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
      - 1) Interface requirements of alteration work with other Project Work.
      - 2) Status of submittals for alteration work.
      - 3) Access to alteration work locations.
      - 4) Effectiveness of fire-prevention plan.
      - 5) Quality and work standards of alteration work.
      - 6) Change Orders for alteration work.
  3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

## 1.6 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain Owner's property.

1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to Owner where directed **at Project site**.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.
- B. Alteration Work Program: Submit **30 days** before work begins.
- C. Fire-Prevention Plan: Submit **30 days** before work begins.

#### 1.8 QUALITY ASSURANCE

- A. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.
- B. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
  1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
  2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
- D. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

#### 1.9 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
  1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
  2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.

3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage designated by Owner.
5. Protect items from damage during transport and storage.

B. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label 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 unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

## 1.10 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of **preconstruction photographs**.
- B. Discrepancies: Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

## PART 2 - PRODUCTS - (Not Used)

## PART 3 - EXECUTION

### 3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
  2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
  3. Erect temporary barriers to form and maintain fire-egress routes.
  4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
  5. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
  6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
  7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
  8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
  2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:
1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
  2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
  3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
  2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

### 3.2 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:
1. Comply with NFPA 241 requirements unless otherwise indicated.
  2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
    - a. If combustible material cannot be removed, provide fire blankets to cover such materials.
- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:
1. Obtain Owner's approval for operations involving use of **open-flame or** welding or other high-heat equipment. Notify Owner at **least 72 hours** before each occurrence, indicating location of such work.
  2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
  3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
  4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
  5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
  6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
    - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
    - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
    - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
    - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than **30 minutes** after conclusion of work **in each area** to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.
    - e. Maintain fire-watch personnel at **each area of** Project site until **60 minutes** after conclusion of daily work.
- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
  - 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

### 3.3 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off Owner's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

### 3.4 GENERAL ALTERATION WORK

- A. Have specialty work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation **photographs or video recordings**.
- D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- E. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
  - 1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516

## SECTION 014000 - 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. 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-assurance and -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 other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.
- C. Related Requirements:
  - 1. Section 012100 "Allowances" for testing and inspecting allowances.

#### 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 substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
  - 1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
  - 2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  - 3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: 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. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.



#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: 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 conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. 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.

#### 1.5 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems 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.
- C. 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.
- D. 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.
- E. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- F. 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.

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. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- 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 014000

## SECTION 014200 - 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," "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": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "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. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

#### 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 indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. 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. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
  - 1. AABC - Associated Air Balance Council; [www.aabc.com](http://www.aabc.com).
  - 2. AAMA - American Architectural Manufacturers Association; [www.aamanet.org](http://www.aamanet.org).
  - 3. AAPFCO - Association of American Plant Food Control Officials; [www.aapfco.org](http://www.aapfco.org).
  - 4. AASHTO - American Association of State Highway and Transportation Officials; [www.transportation.org](http://www.transportation.org).
  - 5. AATCC - American Association of Textile Chemists and Colorists; [www.aatcc.org](http://www.aatcc.org).
  - 6. ABMA - American Bearing Manufacturers Association; [www.americanbearings.org](http://www.americanbearings.org).
  - 7. ACI - American Concrete Institute; (Formerly: ACI International); [www.concrete.org](http://www.concrete.org).
  - 8. ACPA - American Concrete Pipe Association; [www.concrete-pipe.org](http://www.concrete-pipe.org).
  - 9. AEIC - Association of Edison Illuminating Companies, Inc. (The); [www.aeic.org](http://www.aeic.org).
  - 10. AF&PA - American Forest & Paper Association; [www.afandpa.org](http://www.afandpa.org).
  - 11. AGA - American Gas Association; [www.aga.org](http://www.aga.org).
  - 12. AHAM - Association of Home Appliance Manufacturers; [www.aham.org](http://www.aham.org).
  - 13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); [www.ahrinet.org](http://www.ahrinet.org).
  - 14. AI - Asphalt Institute; [www.asphaltinstitute.org](http://www.asphaltinstitute.org).
  - 15. AIA - American Institute of Architects (The); [www.aia.org](http://www.aia.org).
  - 16. AISC - American Institute of Steel Construction; [www.aisc.org](http://www.aisc.org).
  - 17. AISI - American Iron and Steel Institute; [www.steel.org](http://www.steel.org).
  - 18. AITC - American Institute of Timber Construction; [www.aitc-glulam.org](http://www.aitc-glulam.org).
  - 19. AMCA - Air Movement and Control Association International, Inc.; [www.amca.org](http://www.amca.org).
  - 20. ANSI - American National Standards Institute; [www.ansi.org](http://www.ansi.org).
  - 21. AOSA - Association of Official Seed Analysts, Inc.; [www.aosaseed.com](http://www.aosaseed.com).
  - 22. APA - APA - The Engineered Wood Association; [www.apawood.org](http://www.apawood.org).
  - 23. APA - Architectural Precast Association; [www.archprecast.org](http://www.archprecast.org).
  - 24. API - American Petroleum Institute; [www.api.org](http://www.api.org).
  - 25. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
  - 26. ARI - American Refrigeration Institute; (See AHRI).

27. ARMA - Asphalt Roofing Manufacturers Association; [www.asphaltroofing.org](http://www.asphaltroofing.org).
28. ASCE - American Society of Civil Engineers; [www.asce.org](http://www.asce.org).
29. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
30. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; [www.ashrae.org](http://www.ashrae.org).
31. ASME - ASME International; (American Society of Mechanical Engineers); [www.asme.org](http://www.asme.org).
32. ASSE - American Society of Safety Engineers (The); [www.asse.org](http://www.asse.org).
33. ASSE - American Society of Sanitary Engineering; [www.asse-plumbing.org](http://www.asse-plumbing.org).
34. ASTM - ASTM International; (American Society for Testing and Materials International); [www.astm.org](http://www.astm.org).
35. ATIS - Alliance for Telecommunications Industry Solutions; [www.atis.org](http://www.atis.org).
36. AWEA - American Wind Energy Association; [www.awea.org](http://www.awea.org).
37. AWI - Architectural Woodwork Institute; [www.awinet.org](http://www.awinet.org).
38. AWMAC - Architectural Woodwork Manufacturers Association of Canada; [www.awmac.com](http://www.awmac.com).
39. AWPA - American Wood Protection Association; (Formerly: American Wood-Preservers' Association); [www.awpa.com](http://www.awpa.com).
40. AWS - American Welding Society; [www.aws.org](http://www.aws.org).
41. AWWA - American Water Works Association; [www.awwa.org](http://www.awwa.org).
42. BHMA - Builders Hardware Manufacturers Association; [www.buildershardware.com](http://www.buildershardware.com).
43. BIA - Brick Industry Association (The); [www.gobrick.com](http://www.gobrick.com).
44. BICSI - BICSI, Inc.; [www.bicsi.org](http://www.bicsi.org).
45. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); [www.bifma.com](http://www.bifma.com).
46. BISSC - Baking Industry Sanitation Standards Committee; [www.bissc.org](http://www.bissc.org).
47. BWF - Badminton World Federation; (Formerly: International Badminton Federation); [www.bwfbadminton.org](http://www.bwfbadminton.org).
48. CDA - Copper Development Association; [www.copper.org](http://www.copper.org).
49. CEA - Canadian Electricity Association; [www.electricity.ca](http://www.electricity.ca).
50. CEA - Consumer Electronics Association; [www.ce.org](http://www.ce.org).
51. CFFA - Chemical Fabrics & Film Association, Inc.; [www.chemicalfabricsandfilm.com](http://www.chemicalfabricsandfilm.com).
52. CFSEI - Cold-Formed Steel Engineers Institute; [www.cfsei.org](http://www.cfsei.org).
53. CGA - Compressed Gas Association; [www.cganet.com](http://www.cganet.com).
54. CIMA - Cellulose Insulation Manufacturers Association; [www.cellulose.org](http://www.cellulose.org).
55. CISCA - Ceilings & Interior Systems Construction Association; [www.cisca.org](http://www.cisca.org).
56. CISPI - Cast Iron Soil Pipe Institute; [www.cispi.org](http://www.cispi.org).
57. CLFMI - Chain Link Fence Manufacturers Institute; [www.chainlinkinfo.org](http://www.chainlinkinfo.org).
58. CPA - Composite Panel Association; [www.pbmdf.com](http://www.pbmdf.com).
59. CRI - Carpet and Rug Institute (The); [www.carpet-rug.org](http://www.carpet-rug.org).
60. CRRC - Cool Roof Rating Council; [www.coolroofs.org](http://www.coolroofs.org).
61. CRSI - Concrete Reinforcing Steel Institute; [www.crsi.org](http://www.crsi.org).
62. CSA - Canadian Standards Association; [www.csa.ca](http://www.csa.ca).
63. CSA - CSA International; (Formerly: IAS - International Approval Services); [www.csa-international.org](http://www.csa-international.org).
64. CSI - Construction Specifications Institute (The); [www.csinet.org](http://www.csinet.org).
65. CSSB - Cedar Shake & Shingle Bureau; [www.cedarbureau.org](http://www.cedarbureau.org).
66. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); [www.cti.org](http://www.cti.org).
67. CWC - Composite Wood Council; (See CPA).

68. DASMA - Door and Access Systems Manufacturers Association; [www.dasma.com](http://www.dasma.com).
69. DHI - Door and Hardware Institute; [www.dhi.org](http://www.dhi.org).
70. ECA - Electronic Components Association; (See ECIA).
71. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
72. ECIA ? Electronic Components Industry Association; [www.eciaonline.org](http://www.eciaonline.org)
73. EIA - Electronic Industries Alliance; (See TIA).
74. EIMA - EIFS Industry Members Association; [www.eima.com](http://www.eima.com).
75. EJMA - Expansion Joint Manufacturers Association, Inc.; [www.ejma.org](http://www.ejma.org).
76. ESD - ESD Association; (Electrostatic Discharge Association); [www.esda.org](http://www.esda.org).
77. ESTA - Entertainment Services and Technology Association; (See PLASA).
78. EVO - Efficiency Valuation Organization; [www.evo-world.org](http://www.evo-world.org).
79. FIBA - F?d?ration Internationale de Basketball; (The International Basketball Federation); [www.fiba.com](http://www.fiba.com).
80. FIVB - F?d?ration Internationale de Volleyball; (The International Volleyball Federation); [www.fivb.org](http://www.fivb.org).
81. FM Approvals - FM Approvals LLC; [www.fmglobal.com](http://www.fmglobal.com).
82. FM Global - FM Global; (Formerly: FMG - FM Global); [www.fmglobal.com](http://www.fmglobal.com).
83. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; [www.floridarroof.com](http://www.floridarroof.com).
84. FSA - Fluid Sealing Association; [www.fluidsealing.com](http://www.fluidsealing.com).
85. FSC - Forest Stewardship Council U.S.; [www.fscus.org](http://www.fscus.org).
86. GA - Gypsum Association; [www.gypsum.org](http://www.gypsum.org).
87. GANA - Glass Association of North America; [www.glasswebsite.com](http://www.glasswebsite.com).
88. GS - Green Seal; [www.greenseal.org](http://www.greenseal.org).
89. HI - Hydraulic Institute; [www.pumps.org](http://www.pumps.org).
90. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
91. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
92. HPVA - Hardwood Plywood & Veneer Association; [www.hpva.org](http://www.hpva.org).
93. HPW - H. P. White Laboratory, Inc.; [www.hpwhite.com](http://www.hpwhite.com).
94. IAPSC - International Association of Professional Security Consultants; [www.iapsc.org](http://www.iapsc.org).
95. IAS - International Accreditation Service; [www.iasonline.org](http://www.iasonline.org).
96. IAS - International Approval Services; (See CSA).
97. ICBO - International Conference of Building Officials; (See ICC).
98. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
99. ICEA - Insulated Cable Engineers Association, Inc.; [www.icea.net](http://www.icea.net).
100. ICPA - International Cast Polymer Alliance; [www.icpa-hq.org](http://www.icpa-hq.org).
101. ICRI - International Concrete Repair Institute, Inc.; [www.icri.org](http://www.icri.org).
102. IEC - International Electrotechnical Commission; [www.iec.ch](http://www.iec.ch).
103. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); [www.ieee.org](http://www.ieee.org).
104. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); [www.ies.org](http://www.ies.org).
105. IESNA - Illuminating Engineering Society of North America; (See IES).
106. IEST - Institute of Environmental Sciences and Technology; [www.iest.org](http://www.iest.org).
107. IGMA - Insulating Glass Manufacturers Alliance; [www.igmaonline.org](http://www.igmaonline.org).
108. IGSHPA - International Ground Source Heat Pump Association; [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu).
109. ILI - Indiana Limestone Institute of America, Inc.; [www.iliai.com](http://www.iliai.com).
110. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); [www.intertek.com](http://www.intertek.com).

111. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); [www.isa.org](http://www.isa.org).
112. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
113. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); [www.isfanow.org](http://www.isfanow.org).
114. ISO - International Organization for Standardization; [www.iso.org](http://www.iso.org).
115. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
116. ITU - International Telecommunication Union; [www.itu.int/home](http://www.itu.int/home).
117. KCMA - Kitchen Cabinet Manufacturers Association; [www.kcma.org](http://www.kcma.org).
118. LMA - Laminating Materials Association; (See CPA).
119. LPI - Lightning Protection Institute; [www.lightning.org](http://www.lightning.org).
120. MBMA - Metal Building Manufacturers Association; [www.mbma.com](http://www.mbma.com).
121. MCA - Metal Construction Association; [www.metalconstruction.org](http://www.metalconstruction.org).
122. MFMA - Maple Flooring Manufacturers Association, Inc.; [www.maplefloor.org](http://www.maplefloor.org).
123. MFMA - Metal Framing Manufacturers Association, Inc.; [www.metalframingmfg.org](http://www.metalframingmfg.org).
124. MHIA - Material Handling Industry of America; [www.mhia.org](http://www.mhia.org).
125. MIA - Marble Institute of America; [www.marble-institute.com](http://www.marble-institute.com).
126. MMPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); [www.wmmpa.com](http://www.wmmpa.com).
127. MPI - Master Painters Institute; [www.paintinfo.com](http://www.paintinfo.com).
128. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; [www.mss-hq.org](http://www.mss-hq.org).
129. NAAMM - National Association of Architectural Metal Manufacturers; [www.naamm.org](http://www.naamm.org).
130. NACE - NACE International; (National Association of Corrosion Engineers International); [www.nace.org](http://www.nace.org).
131. NADCA - National Air Duct Cleaners Association; [www.nadca.com](http://www.nadca.com).
132. NAIMA - North American Insulation Manufacturers Association; [www.naima.org](http://www.naima.org).
133. NBGQA - National Building Granite Quarries Association, Inc.; [www.nbgqa.com](http://www.nbgqa.com).
134. NCAA - National Collegiate Athletic Association (The); [www.ncaa.org](http://www.ncaa.org).
135. NCMA - National Concrete Masonry Association; [www.ncma.org](http://www.ncma.org).
136. NEBB - National Environmental Balancing Bureau; [www.nebb.org](http://www.nebb.org).
137. NECA - National Electrical Contractors Association; [www.necanet.org](http://www.necanet.org).
138. NeLMA - Northeastern Lumber Manufacturers Association; [www.nelma.org](http://www.nelma.org).
139. NEMA - National Electrical Manufacturers Association; [www.nema.org](http://www.nema.org).
140. NETA - InterNational Electrical Testing Association; [www.netaworld.org](http://www.netaworld.org).
141. NFHS - National Federation of State High School Associations; [www.nfhs.org](http://www.nfhs.org).
142. NFPA - NFPA; (National Fire Protection Association); [www.nfpa.org](http://www.nfpa.org).
143. NFPA - NFPA International; (See NFPA).
144. NFRC - National Fenestration Rating Council; [www.nfrc.org](http://www.nfrc.org).
145. NHLA - National Hardwood Lumber Association; [www.nhla.com](http://www.nhla.com).
146. NLGA - National Lumber Grades Authority; [www.nlga.org](http://www.nlga.org).
147. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
148. NOMMA - National Ornamental & Miscellaneous Metals Association; [www.nomma.org](http://www.nomma.org).
149. NRCA - National Roofing Contractors Association; [www.nrca.net](http://www.nrca.net).
150. NRMCA - National Ready Mixed Concrete Association; [www.nrmca.org](http://www.nrmca.org).
151. NSF - NSF International; (National Sanitation Foundation International); [www.nsf.org](http://www.nsf.org).
152. NSPE - National Society of Professional Engineers; [www.nspe.org](http://www.nspe.org).
153. NSSGA - National Stone, Sand & Gravel Association; [www.nssga.org](http://www.nssga.org).
154. NTMA - National Terrazzo & Mosaic Association, Inc. (The); [www.ntma.com](http://www.ntma.com).

155. NWFA - National Wood Flooring Association; [www.nwfa.org](http://www.nwfa.org).
156. PCI - Precast/Prestressed Concrete Institute; [www.pci.org](http://www.pci.org).
157. PDI - Plumbing & Drainage Institute; [www.pdionline.org](http://www.pdionline.org).
158. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); [www.plasa.org](http://www.plasa.org).
159. RCSC - Research Council on Structural Connections; [www.boltcouncil.org](http://www.boltcouncil.org).
160. RFCI - Resilient Floor Covering Institute; [www.rfci.com](http://www.rfci.com).
161. RIS - Redwood Inspection Service; [www.redwoodinspection.com](http://www.redwoodinspection.com).
162. SAE - SAE International; (Society of Automotive Engineers); [www.sae.org](http://www.sae.org).
163. SCTE - Society of Cable Telecommunications Engineers; [www.scte.org](http://www.scte.org).
164. SDI - Steel Deck Institute; [www.sdi.org](http://www.sdi.org).
165. SDI - Steel Door Institute; [www.steeldoor.org](http://www.steeldoor.org).
166. SEFA - Scientific Equipment and Furniture Association; [www.sefalabs.com](http://www.sefalabs.com).
167. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
168. SIA - Security Industry Association; [www.siaonline.org](http://www.siaonline.org).
169. SJI - Steel Joist Institute; [www.steeljoist.org](http://www.steeljoist.org).
170. SMA - Screen Manufacturers Association; [www.smainfo.org](http://www.smainfo.org).
171. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; [www.smacna.org](http://www.smacna.org).
172. SMPTE - Society of Motion Picture and Television Engineers; [www.smpte.org](http://www.smpte.org).
173. SPFA - Spray Polyurethane Foam Alliance; [www.sprayfoam.org](http://www.sprayfoam.org).
174. SPIB - Southern Pine Inspection Bureau; [www.spib.org](http://www.spib.org).
175. SPRI - Single Ply Roofing Industry; [www.spri.org](http://www.spri.org).
176. SRCC - Solar Rating and Certification Corporation; [www.solar-rating.org](http://www.solar-rating.org).
177. SSINA - Specialty Steel Industry of North America; [www.ssina.com](http://www.ssina.com).
178. SSPC - SSPC: The Society for Protective Coatings; [www.sspc.org](http://www.sspc.org).
179. STI - Steel Tank Institute; [www.steeltank.com](http://www.steeltank.com).
180. SWI - Steel Window Institute; [www.steelwindows.com](http://www.steelwindows.com).
181. SWPA - Submersible Wastewater Pump Association; [www.swpa.org](http://www.swpa.org).
182. TCA - Tilt-Up Concrete Association; [www.tilt-up.org](http://www.tilt-up.org).
183. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); [www.tileusa.com](http://www.tileusa.com).
184. TEMA - Tubular Exchanger Manufacturers Association, Inc.; [www.tema.org](http://www.tema.org).
185. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); [www.tiaonline.org](http://www.tiaonline.org).
186. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
187. TMS - The Masonry Society; [www.masonrysociety.org](http://www.masonrysociety.org).
188. TPI - Truss Plate Institute; [www.tpinst.org](http://www.tpinst.org).
189. TPI - Turfgrass Producers International; [www.turfgrasssod.org](http://www.turfgrasssod.org).
190. TRI - Tile Roofing Institute; (Formerly: National Tile Roofing Manufacturing Association); [www.tilerroofing.org](http://www.tilerroofing.org).
191. UBC - Uniform Building Code; (See ICC).
192. UL - Underwriters Laboratories Inc.; [www.ul.com](http://www.ul.com).
193. UNI - Uni-Bell PVC Pipe Association; [www.uni-bell.org](http://www.uni-bell.org).
194. USAV - USA Volleyball; [www.usavolleyball.org](http://www.usavolleyball.org).
195. USGBC - U.S. Green Building Council; [www.usgbc.org](http://www.usgbc.org).
196. USITT - United States Institute for Theatre Technology, Inc.; [www.usitt.org](http://www.usitt.org).



197. WASTEC - Waste Equipment Technology Association; [www.wastec.org](http://www.wastec.org).
198. WCLIB - West Coast Lumber Inspection Bureau; [www.wclib.org](http://www.wclib.org).
199. WCMA - Window Covering Manufacturers Association; [www.wcmanet.org](http://www.wcmanet.org).
200. WDMA - Window & Door Manufacturers Association; [www.wdma.com](http://www.wdma.com).
201. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); [www.wicnet.org](http://www.wicnet.org).
202. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
203. WSRCA - Western States Roofing Contractors Association; [www.wsrca.com](http://www.wsrca.com).
204. WPA - Western Wood Products Association; [www.wwpa.org](http://www.wwpa.org).

C. 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. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut f?r Normung e.V.; [www.din.de](http://www.din.de).
2. IAPMO - International Association of Plumbing and Mechanical Officials; [www.iapmo.org](http://www.iapmo.org).
3. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
4. ICC-ES - ICC Evaluation Service, LLC; [www.icc-es.org](http://www.icc-es.org).

D. 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. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; [www.usace.army.mil](http://www.usace.army.mil).
2. CPSC - Consumer Product Safety Commission; [www.cpsc.gov](http://www.cpsc.gov).
3. DOC - Department of Commerce; National Institute of Standards and Technology; [www.nist.gov](http://www.nist.gov).
4. DOD - Department of Defense; <http://dodssp.daps.dla.mil>.
5. DOE - Department of Energy; [www.energy.gov](http://www.energy.gov).
6. EPA - Environmental Protection Agency; [www.epa.gov](http://www.epa.gov).
7. FAA - Federal Aviation Administration; [www.faa.gov](http://www.faa.gov).
8. FG - Federal Government Publications; [www.gpo.gov](http://www.gpo.gov).
9. GSA - General Services Administration; [www.gsa.gov](http://www.gsa.gov).
10. HUD - Department of Housing and Urban Development; [www.hud.gov](http://www.hud.gov).
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; <http://eetd.lbl.gov>.
12. OSHA - Occupational Safety & Health Administration; [www.osha.gov](http://www.osha.gov).
13. SD - Department of State; [www.state.gov](http://www.state.gov).
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; [www.trb.org](http://www.trb.org).
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; [www.ars.usda.gov](http://www.ars.usda.gov).
16. USDA - Department of Agriculture; Rural Utilities Service; [www.usda.gov](http://www.usda.gov).
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; [www.ojp.usdoj.gov](http://www.ojp.usdoj.gov).
18. USP - U.S. Pharmacopeia; [www.usp.org](http://www.usp.org).
19. USPS - United States Postal Service; [www.usps.com](http://www.usps.com).

- E. 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. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; [www.gpo.gov/fdsys](http://www.gpo.gov/fdsys).
  2. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
  3. DSCC - Defense Supply Center Columbus; (See FS).
  4. FED-STD - Federal Standard; (See FS).
  5. FS - Federal Specification; Available from Department of Defense Single Stock Point; <http://dodssp.daps.dla.mil>.
    - a. Available from Defense Standardization Program; [www.dsp.dla.mil](http://www.dsp.dla.mil).
    - b. Available from General Services Administration; [www.gsa.gov](http://www.gsa.gov).
    - c. Available from National Institute of Building Sciences/Whole Building Design Guide; [www.wbdg.org/ccb](http://www.wbdg.org/ccb).
  6. MILSPEC - Military Specification and Standards; (See DOD).
  7. USAB - United States Access Board; [www.access-board.gov](http://www.access-board.gov).
  8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State 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. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic Appliance and Repair, Home Furnishings and Thermal Insulation; [www.bearhfti.ca.gov](http://www.bearhfti.ca.gov).
  2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; [www.calregs.com](http://www.calregs.com).
  3. CDHS; California Department of Health Services; (See CDPH).
  4. CDPH; California Department of Public Health; Indoor Air Quality Program; [www.cal-iaq.org](http://www.cal-iaq.org).
  5. CPUC; California Public Utilities Commission; [www.cpuc.ca.gov](http://www.cpuc.ca.gov).
  6. SCAQMD; South Coast Air Quality Management District; [www.aqmd.gov](http://www.aqmd.gov).
  7. TFS; Texas Forest Service; Forest Resource Development and Sustainable Forestry; <http://txforests-service.tamu.edu>.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

## SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

### 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. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

#### 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- D. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 "Multiple Contract Summary."

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- B. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time

frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste handling procedures.
5. Other dust-control measures.

#### 1.5 QUALITY ASSURANCE

- A. 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.
- C. Accessible Temporary Egress: Comply with applicable provisions in **the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.**

#### 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to 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.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches

#### 2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

### 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 by progress of the Work.
  - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. 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. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  - 1. Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
  - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
  - 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- D. Electronic Communication Service: Provide a desktop computer in the primary field office adequate for use by Architect and Owner to access Project electronic documents and maintain electronic communications. Equip computer with not less than the following:

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
  2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: **Use designated areas of Owner's existing** parking areas for construction personnel.
- E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- G. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
1. Do not load elevators beyond their rated weight capacity.
  2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- H. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
  1. Prohibit smoking in construction areas.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and -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.
  4. Provide temporary standpipes and hoses for fire protection. 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 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
  1. Protect porous materials from water damage.
  2. Protect stored and installed material from flowing or standing water.
  3. Keep porous and organic materials from coming into prolonged contact with concrete.
  4. Remove standing water from decks.
  5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Discard or replace water-damaged material.
4. Do not install material that is wet.
5. Discard, replace, or clean stored or installed material that begins to grow mold.
6. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use permanent HVAC system to control humidity.

### 3.6 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.

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.

C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. 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 property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000



## SECTION 016000 - 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. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Section 012100 "Allowances" for products selected under an allowance.
  - 2. Section 012500 "Substitution Procedures" for requests for substitutions.

#### 1.3 DEFINITIONS

- A. Products: Items obtained 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. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process 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. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," 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 additional manufacturers named in the specification.

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 14 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
    - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "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, select product 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 and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 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 determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

## 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.

1. **Manufacturer's Warranty:** Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. **Special Warranty:** Written warranty required by the Contract Documents to provide specific rights for Owner.

- B. **Special Warranties:** Prepare a written document that contains appropriate terms and identification, ready for execution.

1. **Manufacturer's Standard Form:** Modified to include Project-specific information and properly executed.
2. **Specified Form:** When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

- C. **Submittal Time:** Comply with requirements in Section 017700 "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. **General Product Requirements:** Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, 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. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:
  - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience **will not** be considered
  - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers:
  - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience **will not** be considered.
  - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated 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 requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
  - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
  - 1. Evidence that the proposed product does not require 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 016000

## SECTION 017300 - EXECUTION

### 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. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
- B. Related Requirements:
  - 1. Section 011000 "Summary" for limits on use of Project site.
  - 2. Section 017700 "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 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### 1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and

patch structural elements in a manner that could change their load-carrying capacity or increase deflection

2. 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.
  3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
  4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction 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.
- B. Cutting and Patching Conference: 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.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: 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, **mechanical and electrical systems**, 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; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, 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. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to **local utility** and **Owner** 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 caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

### 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.



### 3.4 INSTALLATION

- A. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- B. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- C. 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.
- D. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 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.
  - 3. Coordinate installation of anchorages. 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.
- H. 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.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.5 CUTTING AND PATCHING

- A. Cutting and Patching, 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 in-place 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. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place 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.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to **minimize** interruption to occupied areas.
- G. Cutting: Cut in-place 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 neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. **Concrete and 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 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.
- H. 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 practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical 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 minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.

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 in-place 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, prepare substrate and apply primer and intermediate paint coats appropriate for substrate 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 in-place 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 and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. 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 waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- 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 in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. 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.
- I. 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.
- J. 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 equipment for proper operation. Adjust operating components for proper operation without binding.
- 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: Comply with qualification requirements in Section 014000 "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.

END OF SECTION 017300

## SECTION 017700 - CLOSEOUT PROCEDURES

### 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. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 017300 "Execution" for progress cleaning of Project site.
  - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by **Architect**. Label with manufacturer's name and model number where applicable.
  - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain **Architect's** signature for receipt of submittals.
5. Submit test/adjust/balance records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.

5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the work will be completed and ready for final inspection and tests. 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.

## 1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. 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.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization 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.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.
  4. Submit list of incomplete items in the following format:
    - a. MS Excel electronic file. Architect will return annotated file.
    - b. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: 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, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within **15** days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.



## 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.
  - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform 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 designated 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. Remove snow and ice to provide safe access to building.
    - f. 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.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove labels that are not permanent.
  - 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. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
    - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
  - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in **Section 015000 "Temporary Facilities and Controls.**

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

## SECTION 017823 - OPERATION AND MAINTENANCE DATA

### 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. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Emergency manuals.
  - 3. Operation manuals for systems, subsystems, and equipment.
  - 4. Product maintenance manuals.
  - 5. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

#### 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
  - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  - b. Enable inserted reviewer comments on draft submittals.
- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least **10** days before commencing demonstration and training. Architect will return copy with comments.
  1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within **5** days of receipt of Architect's comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### 2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  1. Title page.
  2. Table of contents.

3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Construction Manager.
  7. Name and contact information for Architect.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.

9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.

2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.

4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.



- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original project record documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- G. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

## SECTION 017839 - PROJECT RECORD DOCUMENTS

### 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. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Section 017700 "Closeout Procedures" for general closeout procedures.
  - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit **one** set(s) of marked-up record prints.
  - 2. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit PDF electronic files of scanned record prints and **one** of file prints.
      - 2) Submit record digital data files and **one** set(s) of prints
      - 3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned record prints.
      - 2) Include each drawing, whether or not changes and additional information were recorded.
    - c. Final Submittal:
      - 1) Submit record digital data files.

- 2) Include each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit **annotated PDF electronic files** of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit **annotated PDF electronic files and directories** of each submittal.
1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: 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 provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Record data as soon as possible after obtaining it.
    - c. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Revisions to routing of piping and conduits.
    - b. Revisions to electrical circuitry.
    - c. Actual equipment locations.
    - d. Duct size and routing.
    - e. Locations of concealed internal utilities.
    - f. Changes made by Change Order or **Construction** Change Directive.
    - g. Changes made following Architect's written orders.
    - h. Field records for variable and concealed conditions.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  - 2. Format: Annotated PDF electronic file
  - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  - 4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications 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. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. Note related Change Orders, **record Product Data**, and record Drawings where applicable.
- B. Format: Submit record Specifications as **annotated PDF electronic file**.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, **record Specifications**, and record Drawings where applicable.
- B. Format: Submit record Product Data as **annotated PDF electronic file**.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

#### 2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. 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.
- B. Format: Submit miscellaneous record submittals as **PDF electronic file**.
  1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

### PART 3 - EXECUTION

#### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

## SECTION 017900 - DEMONSTRATION AND TRAINING

### 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. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training video recordings.
- B. Allowances: Furnish demonstration and training instruction time under the Demonstration and Training Allowance as specified in Section 012100 "Allowances."

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
  - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For facilitator.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
  - 1. Identification: On each copy, provide an applied label with the following information:

- a. Name of Project.
  - b. Name and address of videographer.
  - c. Name of Architect.
  - d. Name of Construction Manager.
  - e. Name of Contractor.
  - f. Date of video recording.
2. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
  3. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
  4. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching operation and maintenance manuals.

#### 1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  1. Inspect and discuss locations and other facilities required for instruction.
  2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  3. Review required content of instruction.
  4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

#### 1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

## PART 2 - PRODUCTS

### 2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project record documents.
    - e. Identification systems.
    - f. Warranties and bonds.
    - g. Maintenance service agreements and similar continuing commitments.
  - 3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.



4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
  
5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
  
6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
  
7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
  
8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

#### 3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
  - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

#### 3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.
  1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
  2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
  3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
  4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
    - a. Name of Contractor/Installer.
    - b. Business address.
    - c. Business phone number.
    - d. Point of contact.
    - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
  1. Film training session(s) in segments not to exceed 15 minutes.
    - a. Produce segments to present a single significant piece of equipment per segment.
    - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
  1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 017900

## SECTION 220500 - COMMON WORK REQUIREMENTS FOR PLUMBING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. See General Conditions and Supplementary Conditions.
- B. The requirements listed under General Conditions and Supplementary Conditions and the General Requirements are applicable to this section and all subsequent Sections of Division 22 and form a part of the contract.
- C. See Division 26 for Electrical Systems.
- D. All electrical work, regardless of voltage which is provided under Division 22 shall comply with the requirements of the National Electric Code (NEC) and Division 26.

#### 1.2 SCOPE OF WORK

Provide all labor, materials, tools, machinery, equipment, supplies, transportation, storage, utilities, appliances, drayage, hauling, hoisting, excavation, backfill, supervision, and services necessary to complete the Plumbing work under this Contract. Pay all fees, tap charges, meter charges, permits, licenses, inspections, and special fees assessed by the local utilities and local authorities having jurisdiction. Coordinate work with the work of the other trades so as to resolve conflicts without impeding job progress.

Examine the Architectural, Structural, Mechanical, Plumbing, and Electrical Drawings and other Divisions, and Sections of the Specifications in order to determine the extent of Work required to be completed. Failure to examine all the Contract Documents for this Project will not relieve the Contractors of the responsibility to perform all the Work required for a complete, fully operational and satisfactory installation.

The work includes but is not limited to the following systems, equipment, and services:

- 1. Tagging and identification of equipment, valves, piping, and conduit, etc.
- 2. Packaged electric generating system.
- 3. Connection of all equipment furnished under other Divisions and/or by the Owner.
- 4. All water services for the building.
- 5. All sewer services for the building.
- 6. All natural gas services for the building.
- 7. All electric services for the building.
- 8. Furnishing of Shop Drawings, Product Data and Samples.
- 9. Furnishing of Record Drawings.
- 10. Start-up, testing, balancing, and adjusting of systems as specified in this Division.
- 11. Furnishing of operating and maintenance books.
- 12. Miscellaneous items as required for complete and functioning systems as specified, as indicated on the Drawings, and as required.
- 13. All systems, equipment, and services specified shall be furnished and installed complete and ready to use.

#### 1.3 CODES AND PERMITS

- A. If applicable, the fire suppression shall be performed in strict accordance with the applicable provisions of the International Building Code, 2021 Edition; the International Plumbing Code,

2021 Edition; the International Fuel and Gas Code, 2021 Edition; the International Mechanical Code, 2021 Edition and the International Fire Code, 2021 Edition as adopted and interpreted by the State of Texas, City of Brenham, and the National Fire Protection Association (NFPA Regulations), current adopted edition, regarding fire protection, heating and ventilating and air conditioning systems and electrical systems. All materials and labor necessary to comply with rules, regulations and ordinances shall be provided. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern. The Contractor shall hold and save the Architect and Engineer free and harmless from liability of any nature or kind arising from his failure to comply with codes and ordinances.

- B. Permits necessary for performance of the work shall be secured and paid for by the Contractor. All utility connections, extensions, and tap fees shall be paid for by the Contractor, unless otherwise specified herein.
- C. The following lists some applicable codes and standards that shall be followed.
  - Applicable county and state mechanical, electrical, gas, plumbing, health and sanitary codes, laws and ordinances.
  - National Electrical Code
  - Underwriters Laboratories, Inc. Standards
  - American National Standards Institute
  - American Society for Testing Materials Standards
  - Standards and requirements of local utility companies.
  - National Fire Protection Association Standards including but not limited to NFPA-1, NFPA-101, NFPA-13
  - Occupational Safety and Health Act
  - Commercial and Industrial Insulation Standards (MICA)
  - American Gas Association
  - The American Society of Sanitary Engineering

#### 1.4 RECORD DRAWINGS

- A. The Contractor shall be responsible to maintain a complete and accurate set of marked up drawings showing information on the installed location and arrangement of all plumbing work, and in particular, where changes were made during construction. The Contractor shall be responsible for keeping record drawings accurate and up-to-date throughout the construction period. The Contractor shall include copies of all addenda, RFI's, bulletins, and change orders neatly attached to record drawing set.
- B. After installation and acceptance of direct buried underground piping and service lines in trenches, the Contractor shall take 'as-built' measurements, including all depths, prior to commencement of backfilling operations. It will not be sufficient to check offline locations. Definite measurements shall be taken for each service line. The location of buried piping and trench service lines shall be shown on the drawings and dimensioned from fixed points.

#### 1.5 QUALIFICATIONS

- A. All mechanics shall be skilled in their respective trade.
- B. All welders shall be certified in accordance with the ASME Boiler Test Code, Section IX, latest issue.

#### 1.6 QUALIFICATION PROCEDURES

- A. The storage, handling, and transportation of all refrigerants, oils, lubricants, etc. shall be accomplished in strict compliance with all State, local, and Federal Regulations including all requirements set forth by the Environmental Protection Agency (EPA) for the safe handling of regulated refrigerants and materials. The Contractor shall utilize qualified and/or certified personnel and equipment as prescribed by these requirements.

#### 1.7 HAZARDOUS CONDITIONS

- A. Protruding metal (bolts, steel angles, etc.) potentially hazardous to maintenance and operation personnel, shall be cut back and/or protected to reduce the risk of injury.

#### 1.8 HAZARD SIGNS

- A. Equipment rooms, fan plenums, and similar areas containing moving or rotating parts, or other potentially hazardous environments shall include signs on all doors entering such spaces that shall read similar to the following: "Hazardous Area - Authorized Personnel Only."
- B. Confined Spaces: Areas designated by OSHA Standard 1910.146 as a confined space shall be marked with a sign that reads "Confined Space - Entry by authorized personnel only, by permit."
  - 1. "Confined Space" means a space that:
    - a. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
    - b. Has limited or restricted means for entry or exit (for example, tanks, vessels, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
    - c. Is not designed for continuous employee occupancy.
- C. The Contractor shall survey the final premises to determine where any such potentially hazardous areas exist. If the Contractor feels that hazards exist which cannot be suitably provided for through the above typical methods, he shall forward in writing his concerns, and request for a decision concerning the referenced hazard, prior to the final inspection of the facilities.

#### 1.9 SUBMITTALS

- A. The Contractor shall submit submittal brochures of all equipment, fixtures and materials to be furnished under Division 22, including but not limited to the following:
  - 1. Piping materials, valves, insulation materials and installation methods, vibration isolation devices, pipe penetration installation methods and products for fire rated assemblies, and all plumbing equipment listed on equipment schedules, and in related construction documents.
  - 2. Materials, certification, shop drawings, and other information as specified in the individual Division 22 Specification Sections within this Specification.
- B. Unauthorized Substitutions: If substitute materials, equipment or systems are installed without prior review or are installed in a manner which is not in conformance with the requirement of this Specification and for which the Contractor has not received a written review, removal of all the unauthorized materials and installation of those indicated or specified shall be provided at no change in contract amount.
- C. All equipment shall be installed in accordance with the manufacturer's recommendations. Provide all accessories and components for optimum operation as recommended by the manufacturer.
- D. Expense: All costs for the preparation, correction, delivery, and return of the submittals shall be borne by the Contractor.
- E. Submittals and one resubmittal will be reviewed by the Architect/Engineer. If the Contractor fails to provide the required data with his second submittal, he will be charged for the third and

subsequent reviews.

- F. Complete data must be furnished showing performance, quality and dimensions. No equipment or materials shall be purchased prior to receiving written notification that submittals have been reviewed and marked either "NO EXCEPTIONS TAKEN" or "EXCEPTIONS AS NOTED." Submittals returned marked "EXCEPTIONS AS NOTED" do not require resubmittal provided that the Contractor agrees to comply with all exceptions noted in the submittal, and so states in a letter.
- G. Review of Submittals: Submittals will be reviewed with reasonable promptness, but only for conformance with the design concept of the Project and for conformance with the information indicated on the Drawings and stated in the Specifications. Review of a separate item as such will not indicate review of the assembly in which the item functions. Review of submittals shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, nor for errors or omissions in the submittals; or for the accuracy of dimensions and quantities, the adequacy of connections, and the proper and acceptable fitting, execution, functioning and completion of the work. Review shall not relieve the Contractor of responsibility for the equipment fitting within the allotted space shown on the drawings with all clearances required for equipment operation, service and maintenance including minimum clearances required by applicable codes, manufacturer's installation instructions and as necessary for proper clearance in front of all electrical panels as defined by the National Electric Code (NEC). Any relocation of plumbing and/or electrical equipment, materials and systems required to comply with minimum clearances shall be provided by the Contractor without additional cost under the Contract.
- H. Shop drawings will be returned unchecked unless the following information is included: cover sheet shall be provided for each submittal of equipment, products and material proposed for use on the project. A common cover sheet for similar equipment (example: all air handling units or all fire protection products) is acceptable. The cover sheet shall list equipment by symbol number; reference all pertinent data in the Specifications or on the drawings; provide size and characteristics of the equipment, name of the project and a space large enough to accept a review stamp. The data submitted shall reflect the actual equipment performance under the specified conditions and shall not be a copy of the scheduled data on the drawings. Cover sheet shall clearly identify any deviations from the specifications for submitted equipment, products, and materials.
- I. Use of substitutions reviewed and checked by the Engineer does not relieve the Contractor from compliance with the Contract Documents. Contractor shall bear all extra expense resulting from the use of any substitutions where substitutions affect adjoining or related work required in this Division or other Divisions of this Specification.
- J. If Contractor substitutes equipment for that drawn to scale on the drawings, he shall prepare a 1/4" = 1'-0" installation drawing for each equipment room where a substitution is made, using dimensions of substituted equipment, and including piping, and electrical equipment requirements, to verify that equipment will fit space with adequate clearances for maintenance. This 1/4" = 1'-0" fabrication drawing shall be submitted for review with the shop drawing submittals of the substitution. Failure to comply with this requirement will result in the shop drawings being returned unchecked.

#### 1.10 COORDINATION DRAWINGS

- A. The Contractor shall, in advance of the work, prepare coordination drawings for:
  - 1. Equipment rooms, and other spaces housing plumbing and lab gas systems equipment, etc.
  - 2. Piping and chases.
  - 3. Complete plumbing piping systems located within the building.

4. Layout of all plumbing equipment.

Show the location of piping openings through the building floors, walls and roofs coordinated with Architectural and Structural, as well as the location and elevations of building fire suppression equipment and systems, including piping, coordinated with HVAC, controls, plumbing, fire suppression, fire alarm, and electrical systems. Coordination drawings, including plans, elevations and sections, as appropriate, shall clearly show the manner in which the plumbing systems fit into the available space and coordinates with HVAC and plumbing equipment, ductwork, piping, sprinkler heads, and electrical equipment, including conduits, light fixtures, motor control centers, transformers, panels, variable frequency drives, etc. Drawings shall demonstrate required code clearances for mechanical and electrical equipment, control panels, etc., and proper operation, maintenance and replacement of plumbing devices and equipment. Coordination drawings shall be of appropriate scale to satisfy the previously stated purposes, but not smaller than 1/8 inch scale for floor plans and 1/4 scale of equipment rooms and chase areas. Drawings may be composite or may be separate but fully coordinated drawings of the same scale. Every subcontractor must sign-off on coordination drawings prepared by each craft. Failure to sign-off will indicate that subcontractor is proceeding at his own risk. Any cost required to relocate systems to comply with required clearance and equipment installation requirements shall be provided by the Contractor without additional cost under the contract.

- B. Coordination drawings shall be submitted prior to the scheduled start of the work in the area illustrated by the drawings, for the purpose of showing the Contractor's planned method of installation. The objectives of such drawings are to promote carefully planned work sequence and proper coordination, in order to assure the expeditious solutions of problems, and the installation of lines and equipment as contemplated by the contract documents while avoiding or minimizing additional costs to the Contractor and to the Owner.
- C. In the event the Contractor, in coordinating the various installations and in planning the method of installation, finds a conflict in location or elevation of any of the plumbing systems, with the structural items or with other construction items, such conflicts shall immediately be documented and submitted for clarification. In doing so, the Contractor shall explain the proposed method of solving the problem or shall request instructions as to how to proceed if adjustments beyond those of usual trades coordination are necessary.
- D. Installation of plumbing work shall not proceed prior to the submission and completion of the review of the coordination drawings, and any conflicts which are disclosed by the coordination drawings. It is the responsibility of the Contractor to submit the required drawings in a timely manner consistent with the requirements for completing the work covered by this contract within the prescribed contract time.

1.11 USE OF BIM OR CADD FILES

- A. Under certain conditions, the Contractor will be permitted the use of the Engineer's BIM or CADD files for documentation of as-builts, submittals, or coordination drawings.
- B. The Engineer may require compensation for the time necessary to format the CADD files delivery to the Contractor. Such work will include removal of title blocks, professional for seals, calculations, proprietary information, etc.
- C. The Contractor shall complete the enclosed License, Indemnity and Warranty Agreement, complete with contractor's name, address, and Contractor's Representative signature prior to request for BIM or CADD file usage.

1.12 PRIOR APPROVAL



- A. Identification of Division 22 equipment, and materials listed within this specification and in the Equipment Schedules on the drawings, which are identified by Manufacturer's Name, Trade Name, and/or Model Numbers are generally not meant to give preference to any manufacturer but are provided to establish the design requirements and standards. Additional manufacturers may be submitted utilizing the Substitution Request Form. Engineer will make final determination if the substitution is accepted.
- B. Requests for proposed substitutions shall be accompanied with catalog and technical data. Actual equipment components and options shall be highlighted and any discrepancies with the specified equipment noted.
- C. Requests for proposed substitutions for unspecified Division 22 major items of equipment, and materials shall be submitted by the manufacturer, supplier, and/or sub-contractor for review. Division 22 prior approval requests shall be submitted and received not later than ten (10) calendar days prior to the bid date.
- D. Requests for prior approval received after the specified due date may not be considered.

#### 1.13 GUARANTEE-WARRANTY

- A. The following guarantee is a part of the specifications and shall be binding on the Contractor:  
"The Contractor guarantees that this installation is free from defects. He agrees to replace or repair any part of the installation which may fail within a period of one year after date established below, provided that such failure is due to defects in the materials or workmanship or to failure to follow the specifications and drawings. Warranty of the Contractor-furnished equipment or systems shall begin on the date the system or equipment is placed in operation for beneficial use of the Owner or occupancy by the Owner, whichever occurs first; such date will be determined in writing, by means of issuing a 'Certificate of Substantial Completion', AIA Form G704", or equivalent.
- B. The extent of guarantees or warranties by Equipment and/or Materials Manufacturers shall not diminish the requirements of the Contractor's guarantee-warranty to the Owner.
- C. All items of plumbing equipment shall be provided with a minimum of one (1) year parts and labor warranty, from the date of acceptance by the Owner.

### PART 2 - PRODUCTS

#### 2.1 QUALITY OF MATERIALS

- A. All equipment and materials shall be new and shall be the standard product of manufacturers regularly engaged in the production of plumbing equipment and shall be the manufacturer's latest design. Specific equipment, shown in schedules on drawings and specified herein, is to set forth a standard of quality and operation.

#### 2.2 ALTITUDE RATINGS

- A. Unless otherwise noted, all specified equipment capacities are for an altitude of 350 feet above sea level and adjustments to manufacturer's ratings must be made accordingly.

#### 2.3 PIPING SYSTEM IDENTIFICATION

- A. Means of Identification: All piping and duct systems installed as part of this project shall be

identified by each of the means described below. The Contractor shall provide shop drawing submittal data for proposed labeling system materials and manufacturer's recommended installation procedures.

- B. Piping Systems shall be identified by means of an identifying legend on color coded background appropriately worded to indicate the "service" name of the pipe as shown on the drawings. Color coded banding shall also be provided. Additionally, an arrow shall be included to indicate the direction of flow through the pipe.
- C. Locations of Piping System Identification: The identifying legends and directional arrows described in the paragraphs preceding shall be located at the following points on each piping system:
  - Adjacent to each valve in piping system.
  - At every point of entry and exit where piping passes through a wall.
  - On each pipe riser and junction.
  - At a maximum interval of 20 feet on pipelines exposed and concealed above accessible ceilings.
  - At every access door.
- D. Piping identification shall meet the standards of the Federal Occupational Safety Health Act (OSHA) which refers to the ANSI Standard A13.1. The following standardized color code scheme shall be used:
  - Yellow - Hazardous Materials
  - Green - Liquid Materials of Inherently Low Hazard
  - Blue - Gaseous Materials of Inherently Low Hazard
  - Red - Fire Protection Materials
- E. The size of letter and length of color field shall conform to the ANSI standard and shall be as follows:

<u>Outside Diameter of Pipe or Covering</u>	<u>Length of Color Field</u>	<u>Size of Letters</u>
1/2" to 1.25"	8"	1/2"
1.5" to 2"	8"	3/4"
2.5" to 6"	12"	1.25"
8" to 10"	24"	2.5"
Over 10"	32"	3.5"

- F. All pipe labels shall be semi-rigid plastic identification markers. Each label shall have appropriately color-coded background with printed legend. Directional flow arrows shall be included on label. Labels shall "snap-on" around pipe without the requirement for adhesive or bonding of piping sizes 3/4" through 5". Labels for piping 6" and larger shall be furnished with spring attachment at each end of label. Labels shall be "SETMARK" Type SNA, 3/4" through 5" size and Type STR, 6" and larger, as manufactured by Seton Name Plate Corporation, Brady, or equivalent.
- G. Attach pipe markers to lower quarter of the pipe on horizontal runs and on the centerline of vertical piping where view is not obstructed. Flow indicator arrow shall point away from pipe marker.
- H. Provide the following labels, with ANSI/OSHA color for all piping systems as shown on the drawings and as listed below:

Letter	Background
--------	------------

<u>Service/Legend</u>	<u>Color</u>	<u>Color</u>
Sanitary Sewer	White	Green

## 2.4 IDENTIFICATION OF CONTROL SYSTEM DEVICES

- A. All automatic controls, control panels, zone valves, pressure electric, electric pressure switches, relays and starters shall be clearly tagged and identified. Wording shall be identical to that on the control diagram in the contract drawings.

## 2.5 EQUIPMENT TAGS

- A. Furnish and install equipment identification tags for all items of PLUMBING equipment furnished and installed under Division 22. Equipment tags shall be a minimum of 3/32" thick laminated phenolic plastic.

## 2.6 ACCESS DOORS

- A. Provide all access doors required for access to valves, controls, or other items for which access is required for either operation or servicing. All costs incurred through failure to perform this function as the proper sequence of this work shall be borne by the Contractor. The type of access door shall be as required by the room finish schedule. Acoustical tile access doors shall be equal to Milcor Model CF, Model K for acoustical plaster, Model M for sidewall drywall or plaster construction.
- B. Access doors shall be not less than 24" x 24" in size except that larger panels shall be furnished where required, and panels in tile or other similar patterned ceilings shall have dimensions corresponding to the tile or pattern module.
- C. Where access doors are installed in walls required to have a specific fire rating, the access door installed shall be a fire rated access door with U.L. label, as manufactured by Milcor or equivalent. Access door in 1-hour construction shall be Class C and access doors in 2-hour construction shall be Class B.

## PART 3 - EXECUTION

### 3.1 COOPERATION WITH OTHER TRADES

- A. The Contractor shall refer to other parts of these specifications covering the work of other trades which must be carried on in conjunction with the plumbing work so that the construction operations can proceed without harm to the Owner from interference, delay, or absence of coordination. The Contractor shall be responsible for the size and accuracy of all openings.

### 3.2 DRAWINGS

- A. The plumbing drawings show the general arrangement of all piping, fixtures, equipment, etc., and shall be followed as closely as actual building construction and work of other trades will permit. Whenever discrepancies occur between plans and specifications, the most stringent shall govern. All Contract Documents, including but not limited to Division 21 Fire Suppression, Division 23 HVAC, Division 26 Electrical, and Division 28 shall be considered as part of the work insofar as this information furnishes the Contractor with details relating to design and construction of the building. Architectural and Structural drawings shall take precedence over the plumbing, HVAC and fire suppression drawings. Because of the small scale of the plumbing, HVAC and fire suppression drawings, it is not possible to indicate all offsets, fittings and accessories which may

be required. The Contractor shall investigate the structural and finish conditions affecting the work and shall arrange his work accordingly, providing such fittings, valves, and accessories as may be required to meet such conditions. Should conditions necessitate a rearrangement of piping, such departures and the reasons therefore shall be submitted by the Contractor for review in the form of detailed drawings showing the proposed changes. No such changes shall be made without the prior written approval. All changes shall be marked on the set of record drawings by the Contractor.

- B. Should any doubt or question arise in respect to the true meaning of the drawings or specifications, the question shall be submitted in writing.
- C. Installation of all plumbing equipment and piping systems shall be arranged to provide all clearances required for equipment operation, service, and maintenance, including minimum clearances required by applicable codes, manufacturer's installation instructions and as necessary for proper clearance in front of all electrical panels as defined by the National Electric Code (NEC). Piping systems shall not be routed through, or above electrical equipment room or electrical equipment space designed within equipment rooms.
- D. The installation of all concealed plumbing systems shall be carefully arranged to fit within the available space without interference with adjacent structural and electrical systems. The Contractor shall make all necessary provisions for penetrations of piping, including sleeves and blockouts in structural systems. The exact location of all exposed plumbing systems; access doors; piping exposed within finished areas; and other equipment and devices as applicable, shall be coordinated with the Architect, who shall have final authority for the acceptance of the work as it specifically relates to the architectural aesthetic design requirements for the facility.

### 3.3 FIELD MEASUREMENTS

The Contractor shall verify the dimensions and conditions governing his work at the building. No extra compensation shall be claimed or allowed on account of differences between actual dimensions, including dimensions of equipment, fixtures and materials furnished, and those indicated on the drawings. Contractor shall examine adjoining work, on which his work is dependent for perfect efficiency, and shall report any work which must be corrected. Coordination of all plumbing work within the building will be the direct responsibility of the Contractor. Review of submittal data in accordance with paragraph "Submittals" shall in no manner relieve the Contractor of responsibility for the proper installation of the plumbing work within the available space. Installation of equipment and systems within the building space shall be carefully coordinated by the Contractor with all building trades. Each contractor shall so harmonize his work with that of the several other trades that it may be installed in the most direct and workmanlike manner without hindering or handicapping the other trades. Piping interferences shall be handled by giving precedence to pipelines which require a stated grade for proper operation. Sewer lines shall take precedence over water lines in determination of elevations. In all cases, lines requiring a stated grade for their proper operation shall have precedence over electrical conduit and ductwork. Installation of plumbing, HVAC and fire suppression equipment within the ceiling cavity shall be in the following order of priority: plumbing waste lines; roof drains; supply, condensate piping; ductwork; fire sprinkler mains; fire sprinkler branch piping and sprinkler runouts; heating hot water and chilled water piping; domestic hot and cold water; control piping, wiring and conduit; miscellaneous special piping systems.

### 3.4 EQUIPMENT SUPPORT

- A. Contractor shall provide support for equipment to the building structure. Contractor shall furnish all necessary structures, inserts, sleeves, and hanging devices for installation of mechanical and

plumbing equipment, ductwork and piping, etc. Contractor shall completely coordinate installation of such devices with all trades and Sub-Contractors. Contractor must further verify that the devices and supports are adequate as intended and do not overload the building's structural components in any way.

### 3.5 PROTECTION OF MATERIALS AND EQUIPMENT

- A. The Contractor shall be responsible for the protection of all work, materials and equipment furnished and installed under this section of the specifications, whether incorporated in the building or not.
- B. Plumbing equipment and materials, including piping, valves and fittings, etc., shall be protected from damage and contamination. Equipment and materials shall not be stored outside and exposed to weather and ambient conditions without appropriate protection measures. Equipment and materials shall be delivered to the jobsite and maintained while on the jobsite with all openings, controls and control panels covered with caps, with heavy duty polyethylene wrap or other proper means. Equipment and materials where stored within the building shall be protected at all times from construction damage and contamination from dust, dirt, debris, and especially during fireproofing, painting and gypboard sanding and finishing. Unprotected equipment and piping will require special field cleaning by the Contractor prior to acceptance by the Owner's Representative.
- C. The Contractor shall provide protection for all work where necessary and shall be responsible for all damage done to property, equipment and materials. Storage of materials within the building shall be approved by the Owner's Representative prior to such storage.
- D. Pipe openings shall be closed with caps or plugs or covered to prevent lodgement of dirt or trash during the course of installation. At the completion of the plumbing work, fixtures and materials shall be cleaned and polished thoroughly and delivered in a condition satisfactory to the Owner's Representative.

### 3.6 TRENCHING AND BACKFILLING

- A. All excavation, trenching and backfilling required for the plumbing installation shall be provided by this Contractor.

### 3.7 MANUFACTURER'S INSTRUCTIONS

- A. All equipment shall be installed in strict accordance with recommendations of the manufacturer. If such recommendations conflict with plans and specifications, the Contractor shall report such conflicts to the Engineer and Owner's Representative, who shall make such compromises as he deems necessary and desirable.

### 3.8 ALIGNMENT OF FLEXIBLE COUPLINGS

- A. Flexible couplings between motors and driven equipment shall be aligned by the qualified service technician after the equipment is installed and ready for operation. Proper aligning shall be provided within manufacturer's maximum alignment tolerance at equipment operating conditions and temperature. Alignment shall follow unit manufacturer's written procedures using approved dial indication methods for parallel and angular alignment. The Contractor shall provide written certification that each device has been so aligned.

### 3.9 TESTS

- A. Tests shall be conducted in the presence of the designated and authorized Owner's Representative. The Contractor shall notify the Architect, Engineer, and Owner's Representative a minimum of one week in advance of scheduled tests. Requirements for testing are specified under the sections covering the various systems. The Contractor shall furnish all necessary equipment, materials, and labor to perform the required tests.

### 3.10 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. The Contractor shall furnish complete operating and maintenance instructions covering all units of plumbing equipment fixtures, faucets, etc., herein specified together with parts lists. Equipment spare parts shall include all components requiring service.
- B. Operating and maintenance manuals as required herein shall be submitted for review and distribution to the Owner not less than two (2) weeks prior to the date scheduled for the Contractor to provide Operating and Maintenance Instructions to the Owner as specified herein.
- C. Upon completion of all work and all tests, Contractor shall furnish the necessary skilled labor and helpers for operating the plumbing systems and equipment for a period of five (5) days of eight (8) hours each. During this period, the Contractor shall instruct the Owner or his representative fully in the operations, adjustment and maintenance of all equipment furnished. Contractor shall provide at least two weeks' notice in advance of this period, with a written schedule of each training session, the subject of the session, the Contractors' representatives who plan to attend the session, and the time for each session.
- D. The Contractor shall video the instruction and training sessions and, at the completion and acceptance (by Owner and Architect) of the training sessions, the Contractor shall submit an electronic copy of the video.
- E. Operational test shall be conducted by the Contractor with the assistance of the equipment manufacturer's representative or service technician. Test shall be conducted in the presence of the designated and authorized Owner's Representative.

### 3.11 CERTIFICATIONS

- A. Before receiving final payment, the Contractor shall certify in writing that all equipment furnished, and all work done is in compliance with the contract documents and all applicable codes. Submit certifications and acceptance certificates, including proof of delivery of O&M manuals, spare parts required, and equipment warranties which shall be bound with O&M manuals.

### 3.12 OPERATION PRIOR TO ACCEPTANCE

- A. Operation of equipment and systems installed by the Division 22 Contractor for the benefit of the Owner prior to substantial completion will be allowed providing a written agreement between the Owner and the Contractor has established warranty and other responsibilities to the satisfaction of both parties.
- B. Operation of equipment and systems installed by the Division 22 Contractor, for the benefit of the Contractor, except for the purposes of testing and balancing will not be permitted without a written agreement between the Owner and the Contractor establishing warranty and other responsibilities.

### 3.13 SITE VISITS AND OBSERVATION OF CONSTRUCTION

- A. The design professional shall make periodic visits to the project site at various stages of construction in order to observe the progress and quality of various aspects of the Contractor's work, in order to determine in general if such work is proceeding in accordance with the Contract Documents. This observation, however, shall in no way release the Contractor from his complete responsibility to supervise, direct, and control all construction work and activities. The design team has no authority over, or a responsibility to means, methods, techniques, sequences, or procedures of construction provided by the Contractor or for safety precautions and programs, or for failure by the Contractor to comply with all law, regulations, and codes.
  
- B. Prior to the "Final" observation visit, the attached "Final Observation Checklist" shall be completed by the Contractor. Any non-applicable items shall be marked "N/A." The completed form shall be submitted, indicating that all necessary items are complete and requesting a final observation within 10 days. The Contractor shall be notified of any uncompleted items within seven (7) days. A resubmittal of the form and a new final observation request by the Contractor is required if the form is returned and noted as incomplete.

END OF SECTION 220500

Project: \_\_\_\_\_ Date Submitted \_\_\_\_\_  
General Contractor: \_\_\_\_\_ Date of Final Mechanical System: \_\_\_\_\_  
Mechanical Contractor: \_\_\_\_\_ Observation Requested: \_\_\_\_\_

CONTRACTOR'S MECHANICAL & PLUMBING CHECK LIST  
(ALL APPLICABLE ITEMS MUST BE COMPLETED PRIOR TO FINAL OBSERVATION)

In advance of requesting a final mechanical observation for installed mechanical systems, please check all items that have been completed. For all items not applicable to this project mark N/A.

PIPING

- \_\_\_\_\_ 1. All plumbing fixtures are set, sealed and cleaned.
- \_\_\_\_\_ 2. All domestic pipe systems are insulated.
- \_\_\_\_\_ 3. All pipe systems are identified with specified labels and directional arrows.
- \_\_\_\_\_ 4. Floor sinks and drain grates are cleaned and debris removed.
- \_\_\_\_\_ 5. Valve tags are installed.
- \_\_\_\_\_ 6. Special equipment (water softeners, water heaters, piping systems, etc.) have been checked and put into service.
- \_\_\_\_\_ 7. Lab gas systems have been checked and certified.
- \_\_\_\_\_ 8. Special piping systems have been cleaned and pressure tested.  
\_\_\_\_\_ Process Piping  
\_\_\_\_\_ Compressed Air  
\_\_\_\_\_ Natural Gas
- \_\_\_\_\_ 9. Limestone chips have been installed in acid dilution sumps.
- \_\_\_\_\_ 10. Plumbing/piping connections have been completed to Owner furnished equipment and equipment furnished by other Contractors/Sub-Contractors.
- \_\_\_\_\_ 11. Exterior wall hydrants have been cleaned.
- \_\_\_\_\_ 12. Concrete collars have been installed at clean-out to grade, valve box, or other specified plumbing items.
- \_\_\_\_\_ 13. Drains and relief lines from plumbing equipment have been installed and secured in a proper manner.
- \_\_\_\_\_ 14. All plumbing equipment and areas of equipment have been cleaned and debris removed.
- \_\_\_\_\_ 15. All plumbing equipment required by the Specifications has been identified and/or numbered.
- \_\_\_\_\_ 16. Domestic water systems flush has been completed.
- \_\_\_\_\_ 17. Strainers/suction diffusers have been cleaned (Including flush valves)



- \_\_\_\_\_18. Backflow preventers have been teste and certified.
- \_\_\_\_\_19. Air has been vented from all systems.
- \_\_\_\_\_20. Water systems have been cleaned (X) and pressure tested (P).
  - \_\_\_\_\_ RO Water System \_\_\_\_\_ Domestic Hot Water
  - \_\_\_\_\_ Domestic Cold Water \_\_\_\_\_ Acid Waste and Vent
  - \_\_\_\_\_ Sanitary Sewer & Vent \_\_\_\_\_ Other (list)
- \_\_\_\_\_21. PRV's have been adjusted (water, gasses).

PLUMBING EQUIPMENT

- \_\_\_\_\_1. All pump shafts and couplings have been aligned.
- \_\_\_\_\_2. Domestic water heaters have been started and tested.
- \_\_\_\_\_3. All plumbing equipment has been lubricated.
- \_\_\_\_\_4. Plumbing equipment has been labeled in accordance with the specifications.
- \_\_\_\_\_5. "HAZARDOUS AREA" signs installed where applicable.
- \_\_\_\_\_6. Variable frequency drives have been tested by the manufacturer's representative and certified to be in compliance with all of the specified requirements.

GENERAL ITEMS

The following specified items have been submitted:

- \_\_\_\_\_1. Record drawings (to be submitted prior to final payment to the Contractor).
- \_\_\_\_\_2. Operation and maintenance manuals.
- \_\_\_\_\_3. Manufacturer's representative installation check and certification submitted (see list of equipment, Section 22 0500).
- \_\_\_\_\_4. Test kits furnished to Owner.
  - \_\_\_\_\_ Flow Measuring Devices
  - \_\_\_\_\_ Flow Balance Valves
  - \_\_\_\_\_ Flow Control Devices
- \_\_\_\_\_5. Control schematics and sequence of operation.
- \_\_\_\_\_6. Plumbing equipment and lubrication, valve, charts have been provided to Owner's Representative.

END CHECKLIST

DIVISION 22 SUBSTITUTION REQUEST FORM (SRF)

TO: RAMIREZ SIMON ENGINEERING, LLC

PROJECT: BLINN MECHANICAL PROJECTS – BRENHAM – MELCHER + BCPA2

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section: \_\_\_\_\_ Page: \_\_\_\_\_ Paragraph/Line: \_\_\_\_\_ Specified Item: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_

Attach complete product description, drawings, photographs, performance and test data, and other information necessary for evaluation. Identify specific Model Numbers, finishes, options, etc.

1. Will changes be required to building design in order to properly install proposed substitutions? YES  NO

If YES, explain: \_\_\_\_\_

2. Will the undersigned pay for changes to the building design, including engineering and drawing costs, caused by requested substitutions? YES  NO

3. List differences between proposed substitutions and specified item.

Specified Item	Proposed Substitution
_____	_____
_____	_____

4. Does substitution affect Drawing dimensions? YES  NO

5. What affect does substitution have on other trades? \_\_\_\_\_

6. Does the manufacturer's warranty for proposed substitution differ from that specified? YES  NO

If YES, explain: \_\_\_\_\_

7. Will substitution affect progress schedule? YES  NO

If YES, explain: \_\_\_\_\_

8. Will maintenance and service parts be locally available for substitution? YES  NO

If YES, explain: \_\_\_\_\_

SUBMITTED BY: Firm: \_\_\_\_\_ Date: \_\_\_\_\_

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

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

<b>For Engineer's Use Only</b>		
Accepted _____	Not Accepted: _____	Received too Late: _____
By: _____	Date: _____	
Remarks: _____		

**BIM/CAD AGREEMENT**

**PROJECT: BLINN MECHANICAL PROJECTS – BRENHAM – MELCHER + BCPA2**

Contractor understands and acknowledges by signature below that by transferring BIM/CAD documents for contractor/subcontractor use, Ramirez Simon Engineering, LLC (RSE) disclaims all warranties and obligations or liabilities for damages, including, but not limited to, consequential damages arising from or in connection with the use or performance of the documents. Contractor shall use documents at contractor's sole risk and without liability, risk or legal exposure to RSE. Documents are diagrammatic in nature developed to display the general scope of the project. It is the contractor's responsibility to verify dimensional requirements.

Contractor agrees to limit document distribution and use to only contractor employees or subcontractors on this project. Contractor shall not distribute documents to any other entities without written consent from RSE.

**CONTRACTOR'S REPRESENTATIVE**

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

Company Name: \_\_\_\_\_

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

Address 1: \_\_\_\_\_

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

Address 2: \_\_\_\_\_

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

SECTION 220504 - PIPE & PIPE FITTINGS

PART 1 - GENERAL

1.1 REQUIREMENTS

- A. Conform with applicable provisions of the General Conditions, Supplementary Conditions and General Requirements.
- B. Lead Ban: All piping, solder and flux used in the installation of piping systems furnished and installed under Division 22, shall be lead free.

1.2 RELATED SECTIONS

- A. Section 22 05 00, Common Work Requirements for Plumbing.

1.3 SUBMITTAL DATA

- A. Contractor shall furnish complete submittal data for all piping materials, including manufacturer's specifications, certifications, class, type and schedule. Submittal data shall additionally be furnished for pipe hangers and supports, pipe sleeves including sealing and fire safing materials and installation.

PART 2 -PRODUCTS

2.1 PIPE AND PIPE FITTINGS

- A. Piping system materials shall be furnished as specified under the Sections describing the various piping systems. Pipe fittings shall be compatible with the piping systems in which they are installed.
- B. Socket weld fittings shall be Schedule 40, 2000 pound or Schedule 80, 3000-pound construction, as specified in the applicable Sections of this Specification, conforming to ANSI B16.11, as manufactured by Grinnell or equivalent.
- C. Pipe fittings for copper piping system shall be wrought copper conforming to ANSI B16.22. Cast brass fittings conforming to ANSI B16.23, may be utilized for sanitary drainage, waste and vent systems, HVAC gravity condensate drainage system, and other non-pressure applications.
- D. Bronze flanges, Class 125, and Class 150, shall conform to ANSI B16.24.

2.2 FLOOR, WALL, AND CEILING PLATES

- A. Where uncovered, exposed pipes pass through finished floors, finished walls, or finished ceilings, they shall be fitted with chromium plated spun brass escutcheon plates. Plates shall be large enough to completely close the hole around the pipe and shall be not less than 1-1/2" or more than 2-1/2" larger than the diameter of the pipes. All plates shall be securely held in place.

2.3 DIELECTRIC FITTINGS

- A. Dielectric insulating fittings shall be provided to connect dissimilar metals, such as copper tubing to ferrous metal pipe. Connections 2" and smaller shall be threaded dielectric union conforming to ANSI B16.39. Connections 2-1/2" and larger shall be flange union with dielectric gasket and

bolt sleeves, conforming to ANSI B16.42. Insulating fittings will not be required between bronze valves and copper piping, unless otherwise specified. Dielectric coupling is not permitted.

2.4 PIPE HANGERS AND SUPPORTS

- A. All piping shall be rigidly supported from the building structure by means of hanger assemblies properly selected and sized for the application in accordance with the manufacturer's recommendations and specifications. Pipe hangers shall be Grinnell, B-Line, or equivalent.
- B. No attempt has been made to show all required piping supports in all locations, either on the drawings or in the details. The absence of pipe supports and details on any drawing shall not relieve the Contractor of the responsibility for furnishing and installing proper hangers and supports throughout.
- C. Piping hangers shall be spaced on the scheduled maximum spacing and shall have hangers not more than one foot from each elbow and other changes in direction or elevation. Provide additional hangers and supports at valves, strainers, in-line pumps adjacent to flexible connections, and other required heavy components. Piping system shall be installed in an approved manner and shall not overload the building structural frame. Contractor shall provide additional hangers and miscellaneous steel supports as may be required to distribute the piping system load over multiple structural members where required or directed. Maximum allowable spacing for steel and copper piping, other than fire protection piping, shall be as scheduled in Table No. 1.

TABLE NO. 1

MAXIMUM SUPPORT SPACING FOR COOPER  
 AND PVC PIPING SYSTEMS

<u>Copper Piping</u>	<u>- Maximum Spacing</u>
3/4" through 2"	- 6'-0"
2-1/2" through 4"	- 8'-0"
5" and larger	- 10'-0"
<u>PVC Piping*</u>	<u>- Maximum Spacing</u>
3/4" and 1-1/4"	- 4'-0"
1-1/2" through 2"	- 5'-0"
2-1/2" through 3"	- 6'-0"
4"	- 7'-0"
6" through 10"	- 8'-0"
12"	- 9'-0"
14" and larger	- 10'-0"

\*Refer to manufacturer recommendations for specific intervals per temperature difference.

- D. Round rods supporting the pipe hangers shall be of the minimum dimensions as scheduled in Table No. 2. Hanger rods shall be hot-rolled steel, ASTM A-36 or A575, galvanized, all-thread. Provide for controlling level and slope by turnbuckles or other approved means of adjustment and incorporate locknuts.

TABLE NO. 2

HANGER ROD SIZE FOR PIPE HANGER SUPPORTS

1/2" to 2" pipe	- 3/8" rod
2-1/2" to 3" pipe	- 1/2" rod
4" to 5" pipe	- 5/8" rod
6" pipe	- 3/4" rod
8" to 12" pipe	- 7/8" rod
14" and 16" pipe	- 1" rod
18" and 20" pipe	- 1-1/4" rod

- E. Hangers, clamps and other support materials in contact with copper piping shall be copper or copper plated to prevent electrolysis. Hangers for copper piping shall be copper plated adjustable ring type Grinnell Fig. CT-269, adjustable swivel ring, Grinnell Fig. CT69, Fig. CT-65 or adjustable clevis type or equivalent. Provide minimum 10 mil plastic wrap around copper pipe at any ferrous point of attachment including trapeze hangers, clamps, and other supports.
- F. Hangers for steel shall be steel clevis type hangers, Grinnell Fig. 260 or equivalent.
- G. Hangers and associated hardware in crawlspace, under foundations, and in wet areas shall be hot dipped galvanized. Otherwise, hangers and hardware shall be cadmium plated.
- H. Where piping is installed side by side, the Contractor may support the piping utilizing trapeze type hanger assemblies. Horizontal trapeze member shall be galvanized steel channel, not less than 1-1/2" x 1-1/2" x 12" gauge, or Unistrut. Contractor shall provide heavier steel members as required for the load to be supported and the distance span. Hanger rods shall be as specified above, properly sized for the load supported but not less than 5/8" diameter. Un-insulated copper piping shall be isolated from the steel trapeze. Individual pipe shall be guided on the horizontal member at every other hanger point with 1/4" U-bolt fabricated from steel rod. Provide full circle galvanized sheetmetal insulation shield for insulated piping at trapeze hangers with U-bolt guide and galvanized sheetmetal insulation half-shield at other trapeze hangers. Insulation shield shall be 18 gauge minimum, Grinnell Fig. 167 or equivalent.
- I. As required for the proper control of the system expansion and contraction, and for heating hot water provide rolled type supports. Roller hangers shall be Grinnell Fig. 181 or equivalent and roll support for trapeze hangers and pipe racks shall be Grinnell Fig. 271 or equivalent complete with base plate.
- J. Special piping supports including wall support racks, floor mounting type supports shall be provided as indicated on the drawings, and as required for the proper support for the piping systems.
- K. Vertical piping shall be supported at each floor level by means of riser clamps, Grinnell Fig. 261 and Fig. G-121 copper clad for copper piping systems, or equivalent. Proper allowance for the expansion and contraction of the vertical risers shall be provided. Contractor shall submit shop drawings indicating proposed method for support and control of expansion and contraction of vertical piping.
- L. The use of pipe hooks, chains, or perforated iron for pipe hanger supports will not be permitted.
- M. Attachment of piping hangers to the building structure shall be provided in a manner approved by a Structural Engineer. The Contractor shall provide concrete inserts in the building

construction at the time the concrete is poured, and hangers shall be attached to these inserts. Self-drilling expansion anchors, Federal Specification FF-S-325, may be used in concrete construction not less than 4" thick. Applied load shall not exceed manufacturer's approved ratings. Power driven fasteners may be used in existing concrete or masonry not less than 4" thick where approved by a Structural Engineer. Attachment to wood construction shall be by means of wood screws or lag bolts.

## 2.5 PIPE SLEEVES

- A. Pipe sleeves shall be furnished and set by the Contractor, and he shall be responsible for their proper and permanent location. Piping will not be permitted to pass through footings, beams or ribs except with written consent of the Architect. Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through gypboard stud walls and concrete, and masonry construction and at all fire and smoke rated walls and partitions. Pipe sleeves, except sleeves in footings and beams shall be equal to Pipe Shields Incorporated Model WFB for walls, DFB for decks, or QDFB for corrugated decks, or equivalent. Each sleeve shall be adjustable, with annular spacing packed with U.L. approved mineral fiber fire safing material. Where insulated piping is installed, calcium silicate inserts to match the insulation thickness and extending 1" past the sleeve on both ends, shall be provided. Pipe sleeves in concrete and masonry construction, footings and beams shall be Schedule 40 black steel pipe. Pipe sleeves in gypboard construction shall be galvanized steel metal. Sleeves shall be not less than 1" or more than 2" larger in diameter than the pipe to be installed. Pipe sleeves in floors shall extend 2" above finished floor in chases and equipment room areas unless otherwise approved by the Architect. Openings between piping and sleeves shall be made watertight with plastic cement installed to a minimum depth of 2". Where pipes pass through exterior walls, the annular space between the wall and the pipe shall be sealed by sealing elements made of synthetic rubber, pressure plates, and cadmium plated bolts as manufactured by Link-Seal, or equivalent.
- B. Un-insulated piping passing through fire walls, smoke wall, sound control walls and air plenum separations shall be sealed airtight to the adjacent construction by means of UL approved fireproof caulking materials.
- C. Insulated piping passing through fire walls and smoke walls shall be provided with a section of UL approved fire safing insulation to match the required insulation thickness or Pipe Shields, Inc. pipe shield sleeves as specified above at the required wall penetrations. The space between the piping sleeve penetration and the adjacent wall Construction shall be sealed airtight with UL approved fireproof caulking material. Penetrations of gypboard sound walls and air plenum separators shall be caulked airtight with an approved caulking compound.

## PART 3 - EXECUTION

### 3.1 PIPING INSTALLATION

- A. Provide and erect, according to the best practices of the trade, all piping shown on drawings and required for the complete installation of these systems. The piping shown on the drawings shall be considered as diagrammatic for clearness in indicating the general run and connections and may or may not in all parts be shown in its true position. The piping may have to be offset, lowered or raised as required or as directed at the site. This does not relieve the Contractor from responsibility for the proper erection of systems or piping in every respect suitable for the work intended as described in the specifications. In the erection of all piping, it shall be properly supported, and proper provisions shall be made for expansion, contraction and anchoring of piping. All piping shall be cut accurately for fabrication to measurements established at the construction site. Pipe shall be worked into place without springing and/or forcing, properly

clearing all windows, doors, and other openings and equipment. Cutting or other weakening of the building structure to facilitate installation will not be permitted. All pipes shall have burrs and/or cutting slag removed by reaming or other cleaning methods. All changes in direction shall be made with fittings. All open ends of pipes and equipment shall be properly capped or plugged to keep dirt and other foreign materials out of the system. Plugs of rags, wool, cotton waste or similar materials may not be used in plugging. All piping shall be arranged so as not to interfere with removal and maintenance of equipment or filters or devices; and so as not to block access to manholes, access openings, etc. Flanges or unions as applicable for the type of piping specified shall be provided in the piping at connections to all items of equipment including refrigeration machines. All piping shall be so installed to ensure noiseless circulation. All piping shall be erected to ensure proper draining.

### 3.2 TESTING

- A. Before any insulation is installed or before piping is covered or enclosed, all piping systems shall be tested and proven tight at not less than 150% of the maximum service pressure which the piping systems will be required to handle. Piping system tests shall be as specified in the applicable sections of this Specification. All tests shall be witnessed and approved by the Owner's representative.
- B. All labor, material, and equipment required for testing shall be furnished by the Contractor. The Contractor shall be responsible for all repairs and retesting as required. All instruments and other equipment whose safe pressure range is below that of the test pressure shall be removed from the line or blanked off before applying the tests. To perform tests, all lines shall be flushed and cleaned.
- C. All safety measures required by codes or ordinances or reasonably applicable to the situation shall be provided by the Contractor in conjunction with the testing of the piping systems.
- D. Equipment or piping to be pressure tested shall not be insulated, covered, or concealed prior to that test. Tie rods, clamps etc., shall be in place and fastened.
- E. Apply test pressure only after the system and test medium are at approximately the same temperature, preferably not less than 60<sup>0</sup>F. Note that some applicable codes may require testing above a specified minimum temperature.
- F. Systems may be separated into sub-systems for testing if such action will expedite or simplify the testing.
- G. During hydrostatic testing of lines, provide temporary supports to prevent overstressing supports or hangers. When tests are completed, remove all temporary supports, locks, stops, etc., and adjust supports for their cold load and alignment.

END OF SECTION 220504



## SECTION 220523 - VALVES FOR PLUMBING

### PART 1 - GENERAL

#### 1.1 REQUIREMENTS

- A. All Valves shall conform with current applicable provisions of the General Conditions, Supplementary Conditions, and General Requirements.
- B. All Valves shall meet the current MSS Specifications covering Bronze & Iron Valves. MSS-SP-80, MSS-SP-70, MSS-SP71, MSS-SP-85 where applicable.
- C. Lead Ban: Valves shall be lead free.

#### 1.2 RELATED SECTIONS

- A. Section 22 05 00 for Common Work Requirements for Plumbing.
- B. Section 22 05 00 for Valve Identification.
- C. Section 22 05 04 for Pipe and Pipe Fittings.
- D. See Division 23 for Valves.

#### 1.3 SCOPE

- A. Contractor shall furnish and install all valves and accessories necessary for satisfactory operation of the systems.

#### 1.4 VALVE REQUIREMENTS

- A. All Gate, Globe, Check, Ball valves shall be manufactured by Milwaukee, Nibco, Grinnell, or equivalent.
- B. All lubricated plug valves shall be as manufactured by Walworth, Homestead, or equivalent.
- C. Ball valves shall be utilized in lieu of gate valves and globe valves for all plumbing systems for sizes 2" and smaller.
- D. Provide gate and globe valves with packing that can be replaced with the valve under full working pressure.
- E. Provide chain operators for valves 4" and larger installed within mechanical equipment spaces where valves center line is in excess of eight feet above the floor or operating platform.

### PART 2 - PRODUCTS

See Division 23, Section 23 05 23 for applicable requirements.

### PART 3 - EXECUTION

See Division 23, Section 23 05 23 for applicable requirements.

END OF SECTION 220523

## SECTION 220700 - PLUMBING INSULATION

### PART 1 - GENERAL

#### 1.1 REQUIREMENTS

- A. Conform with applicable provisions of the General Conditions, Supplementary Conditions and General Requirements.
- B. Materials shall conform to applicable ASTM standards.

#### 1.2 RELATED SECTIONS

- A. See Section 22 05 00, for Common Work Requirements for Plumbing.
- B. See Section 22 05 04, for Pipe and Pipe Fittings.

#### 1.3 SCOPE

- A. Domestic hot water pipe including soft hot water and circulating hot water, interior roof drains including roof drain bowls, interior overflow roof drains including overflow roof drain bowls, domestic cold water and soft cold-water piping, and water piping located outdoors exposed to ambient freezing conditions.
- B. Equipment covering, including storage tanks, pumps, and domestic hot water heater stacks and breeching.

#### 1.4 FITTINGS

- A. All fittings except as otherwise specified, shall be insulated with the same material and thickness as specified for the pipe.
- B. Unions, flanges and valves on hot water, will not require insulation.

#### 1.5 TESTING

- A. All piping shall be tested in accordance with the applicable Specification Sections, before any insulation is applied.

### PART 2 - PRODUCTS

#### 2.1 INSULATION

- A. Insulation shall be as manufactured by Armacell, Owens-Corning Fiberglas, Knauf, Johns Manville, or Armstrong, or equivalent, and shall be equal to that specified below. Insulation and all materials on the interior and exterior surfaces of ducts, pipes, and equipment shall have a composite fire and smoke hazard rating not exceeding: Flame spread - 25; fuel contribution - 50; smoke developed - 50, as determined in accordance with ASTM Standard E-84. All insulation materials used for valves and fittings shall have the same ratings as the pipe insulation. Information must be submitted by means of manufacturer's literature showing that the proposed materials conform to above specification without exception.

- B. Type P-1, Fiberglass Pipe Insulation: Factory assembled insulation and ASJ. Pre-formed fiberglass per ASTM C547 Type I, suitable for use on surfaces from 0–850°F, with thermal conductivity 0.27 at 75°F or 0.33 at 250°F, and minimum 3 pcf density. Jacket shall be all service (ASJ) vapor barrier jacket with white kraft paper reinforced with glass fiber yarn and bonded to aluminum foil, secured with self-sealing longitudinal laps and butt strips. Owens Corning SSL II Pipe Insulation, Johns Manville Micro-Lok, Knauf Pipe Insulation. Johns Manville 'Micro-Lok' or equivalent. Where Type P-1 insulation is used, insulate fittings, valves and accessories using Fiberglass pre-formed fitting insulation complying with the specification for P-1 pipe insulation, Johns Manville Hi-Lo Temp insulation inserts, Hamfab, OAE. Finish with PVC Jacketing fitting covers.
- C. Type P-2 Elastomeric Foam Insulation: Pre-formed elastomeric foam, ASTM C534 Type 1 flexible, closed cell, suitable for use up to 220°F, UV protected, not to exceed flame spread 25 and smoke developed 50 based on 0.75-inch thickness, conductivity 0.30 at 75°F. Connections shall be made using manufacturer's approved waterproof vapor barrier retarder adhesive. Provide outdoor U.V. protective coating on all insulation exposed to ambient conditions. Armacell OAE. Where Type P-2 insulation is used, insulate fittings, valves and accessories using pre-formed insulation for use on fittings and valves.
- D. P-3: Fiberglass preformed board insulation for equipment shall conform to ASTM C612 with 'K' factor of 0.23 at 75°F, R=8.0 minimum, 3.0 pound per cubic foot density. Provide vapor barrier jacket (FSK) with aluminum foil reinforced with fiberglass yarn and laminated to fire-resistant kraft, secured with UL listed pressure sensitive tape and outward clinched expanded staples and vapor barrier mastic. Johns Manville 'Spin-Glas' or equivalent.
- E. P-4: Elastomeric foam insulation for piping and equipment shall be flexible, cellular, molded or sheet, conforming to ASTM C534, with 'K' factor of 0.28 at 75°F., maximum service temperature of 220°F., maximum flame spread rating of 25 and maximum smoke development rating of 50 (3/4" thickness and less). Connections shall be made using manufacturer's approved waterproof vapor barrier retarder adhesive. Provide outdoor U.V. protective coating on all insulation exposed to ambient conditions.

## 2.2 FITTINGS

- A. Valves and fittings, where required to be insulated, shall be covered with the same insulation material and thickness as specified for the pipe insulation and finished with PVC covers.
- B. Valves and fittings with systems specified to be covered with metal or canvas, or polyvinyl chloride (PVC) jacket shall be covered with material to match piping system jacketing.
- C. Polyvinyl chloride (PVC) preformed fitting covers with fiberglass inserts shall be used on valves and fittings, except where metal or canvas jacket is required for piping system. PVC fitting covers shall be Zeston 2000 or equivalent, gloss white and shall have a composite fire and smoke hazard rating not exceeding; flame spread - 25; smoke development - 50. Connections shall be made using tacks and pressure sensitive color matching vinyl tape. Seams shall be on the bottom side of pipe and fittings.

### 2.3 METAL JACKETING

- A. Type J-1 Stainless Steel Jacket: Metal jacket shall be 0.010-inch smooth Type 304 stainless steel. Provide moisture barrier lining for service temperatures 60°F and less, except where applied over insulation with All Service (ASJ) vapor barrier jacket. Stainless steel jacket shall be installed where specified herein or otherwise indicated on the drawings.

### 2.4 PVC JACKETING

- A. Type J-2 PVC Jacket: PVC jacketing shall be Zeston 2000/300 or equivalent, gloss white, 0.020-inch thickness, minimum, and shall have a composite fire and smoke hazard rating not exceeding; flame spread -25; smoke development -50. Connection shall be made using tacks and pressure sensitive color matching vinyl tape. Seams shall be on the bottom side of pipe and fittings. Solvent Cement for PVC Jackets shall be Johns Manville Perma-Weld OAE.

### 2.5 PIPE HANGERS AND SUPPORTS

- A. See Specification Section 22 0504 for requirements associated with hangers and supports for piping systems.
- B. All insulated piping systems shall be provided with individual hangers sized to encircle the insulation.
- C. Pipe Hanger Insulation Inserts: Mechanical Pipe Shields Inc. “Snapp Itz” OAE.
- D. Insulated piping supported by means of trapeze hangers or roller type hangers shall not rest directly on the hanger or support.
- E. The insulation at hangers, trapezes and supports shall be protected by means of galvanized steel insulation half diameter support shields. Provide insulation insert between support shield and piping for piping size 1-1/2" and larger. Insulation inserts shall be heavy density calcium silicate molded insulation. Insulation inserts shall be the following minimum lengths. Factory fabricated thermal pipe shield as manufactured by Pipe Shields, Inc., and specified in Section 22 0504, may be used at Contractor's option.

<b>Pipe Size, In.</b>	<b>Insert Length</b>
1-1/2" to 2-1/2"	10" Long
3" to 6"	12" Long
8" to 10"	16" Long
12" and larger	22" Long

### 2.6 PIPE SLEEVES

- A. See Specification Section 22 0504 for requirements associated with pipe sleeves for piping penetrations for building walls and frames.
- B. Pipe sleeves shall be provided at penetrations through concrete and masonry construction and at fire rated and smoke rated walls and penetrations when required to comply with UL approved penetration assembly. Insulated piping passing through fire walls and smoke walls shall be provided with UL approved fire safing insulation to match the required insulation thickness and the space between the piping penetration and the adjacent wall

construction shall be sealed airtight with UL approved fireproof caulking material. Pipe penetration arrangement and installation requirements shall match the applicable UL approved penetration assembly details.

PART 3 - EXECUTION

3.01 GENERAL

A. General: Insulate piping as indicated herein and on the drawings. Except as noted, insulate all valves, fittings, and accessories with the same material and thickness specified for the pipe. Where piping is specified with a separate insulation jacket provide this same jacket for valves, fittings, and accessories. Vapor seal cold piping systems.

1. Where insulation terminates, provide insulating cement beveled for a neat finish. For vapor sealed piping, coat with insulating mastic prior to applying insulating cement.
2. Strainers and Suction Diffusers: Type P-1. Make provisions to easily remove and re-install insulation.
3. Pipe Supports: Provide high density calcium silicate insulation or insulation inserts as specified. Maintain pipe jacket and vapor barrier at supports. If necessary, apply a heavy coating of vapor barrier mastic material to prevent condensation from forming on supports. Provide galvanized steel insulation shields to protect insulation and jackets at supports.
4. Penetrations Through Building Construction: Insulation shall be continuous where piping passes through walls, floors, and other construction. Where insulated piping passes through fire and/or smoke rated construction, provide a section of UL approved fire safing insulation to match the required insulation thickness, or provide an insulated pipe sleeve as manufactured by Pipe Shield, Inc., OAE.
5. Mechanical Couplings: Where mechanical couplings are permitted, insulate them as specified for fittings.
6. All voids formed by support saddles or other mounting or support hardware shall be filled with insulation.
7. The termination of all insulation on pipes, at uninsulated valve connections, or unions, flexible connections, etc., shall be beveled and finished.

B. Application:

Temp Range	Temp (F)	Insulation Type	Vapor Sealed	Pipe Size (inch dia.)				
				Under 1	1& 1.25	1.5 - 3	4 & 6	8 & Larger
				Insulation Thickness (inches)				
TR-1	60&Less	P-2	Yes	1.0	1.0	1.5	1.5	2.0
TR-2	61 - 104	P-2	Yes	1.0	1.0	1.0	1.0	1.0
TR-3	105 - 140	P-2	No	1.0	1.0	1.5	1.5	2.0
TR-4	141 - 200	P-2	No	1.5	1.5	2.0	2.0	2.0

1. Temperature Range TR-1: Sanitary/Waste Floor drains/sinks indoors and associated piping as well as storm drain piping.
2. Temperature Range TR-2: Domestic cold water.
3. Temperature Range TR-3: Domestic hot water.
4. Temperature Range TR-4: Domestic hot water.

C. Type P-1, Fiberglass Insulation: Install in accordance with manufacturer’s recommendations.

D. Type P-2, Elastomeric Foam: Seal all butt ends and longitudinal joints with Halstead

Adhesive. When exposed to the weather, protect flexible tubing insulation with two coats of exterior weatherproof coating as recommended by manufacturer.

E. Jacketing:

1. Type J-1 jacketing shall be applied with joints overlapped 2" and located to shed water. Joints and seams shall be caulked with an approved weatherproof caulking when located outdoors. The insulation shall be banded 12" on centers or screwed in place 3" on centers. Fittings and valves shall have insulation covered with metal jacket, as specified herein. Fittings and valves on exterior piping shall be covered with metal jacketing to match pipe.
2. Type J-2 shall be secured in place in an approved manner by means of tacks and pressure sensitive tape. Fittings and valves shall have insulation covered with PVC pre-molded PVC fittings to match jacketing. PVC jacketing shall not be permitted for use on
3. In addition to the finish and jacket specified for the particular type of insulation, provide the following:
  - a. Indoor piping exposed to physical damage or visible to general occupants Type J-1, Metal
  - b. Mechanical Equipment Spaces: Exposed piping less than 8 ft above floor or operator platform Type J-1, Metal
  - c. Exterior piping Type J-1, Metal

3.2 PIPING INSULATION

- A. General: Insulate piping as indicated herein and on the drawings. Except as noted, insulate all valves, fittings, and accessories with the same material and thickness specified for the pipe. Where piping is specified with a separate insulation jacket provide this same jacket for valves, fittings and accessories. Vapor seal cold piping systems.
1. Where insulation terminates, provide insulating cement beveled for a neat finish. For vapor sealed piping, coat with insulating mastic prior to applying insulating cement.
  2. Strainers and Suction Diffusers: Type P-1. Make provisions to easily remove and re-install insulation.
  3. Pipe Supports: Provide high density calcium silicate insulation or insulation inserts as specified. Maintain pipe jacket and vapor barrier at supports. If necessary, apply a heavy coating of vapor barrier mastic material to prevent condensation from forming on supports. Provide galvanized steel insulation shields to protect insulation and jackets at supports.
  4. Penetrations through Building Construction: Insulation shall be continuous where piping passes through walls, floors, and other construction. Where insulated piping passes through fire and/or smoke rated construction, provide a section of UL approved fire safing insulation to match the required insulation thickness, or provide an insulated pipe sleeve as manufactured by Pipe Shield, Inc., OAE.
  5. Mechanical Couplings: Where mechanical couplings are permitted, insulate them as specified for fittings.
  6. All voids formed by support saddles or other mounting, or support hardware shall be filled with insulation.

- B. Special Applications
  - 1. Heat Traced Piping: Oversize insulation as required to accommodate heat tracing. Provide metal jacket.
  - 2. Plastic pipe in return air plenums: Provide 0.5-inch type D6 insulation.
  - 3. Piping subject to freezing and heat traced piping: Insulate all such piping (including drain piping) with thicknesses specified, but not less than 2-inch thickness. Oversize insulation to accommodate heat tracing where applicable. Provide metal jacket.

### 3.3 DOMESTIC HOT WATER PIPING

- A. Domestic hot water piping with operating temperatures of 140°F and less, including recirculating hot water piping shall be insulated with (P-1) 1-inch-thick fiberglass preformed pipe insulation with All Service Jacket (ASJ). Fittings shall be finished with PVC fitting covers.
- B. Insulation thickness for domestic and service water systems operating in excess of 140°F, shall be (P-1) 1-inch-thick fiberglass preformed pipe insulation with All Service Jacket (ASJ) for piping 3/4" through 3" size and 1-1/2" thick for piping 4" and larger. Fittings shall be finished with PVC fitting covers.

### 3.4 DOMESTIC COLD WATER AND SANITARY SEWER RECEIVING CONDENSATE WATER FROM HVAC SYSTEMS

- A. Domestic cold-water piping, non-potable water piping, indoor sanitary sewer receiving condensate water from HVAC equipment, and indoor storm water piping shall be insulated with 1-inch thick (P-4) elastomeric foam insulation. Fittings shall be finished with PVC fitting covers.

### 3.5 HANDICAP LAVATORY

- A. Domestic hot and cold-water piping and P-traps exposed below handicapped lavatories shall be insulated with HANDI LAV-GUARD insulation kits which satisfy ANSI A117.1 requirements. Insulation shall have a flexible vinyl finish which protects against burning and cushions impact.

### 3.6 METAL JACKETING

- A. Metal jacketing shall be installed on all field insulated plumbing equipment and on plumbing piping systems exposed within the mechanical equipment spaces, that are installed exposed below 8 feet above the floor, where exposed to physical damage, on outdoor insulated piping, and where noted on the drawings.
- B. The jacketing shall be applied with joints overlapped 2" and located to shed water. Joints and seams shall be caulked with an approved weatherproof caulking when located outdoors. The insulation shall be banded 12" on centers or screwed in place 3" on centers.



- C. Fittings and valves shall have insulation covered with metal jacket, as specified herein. Fittings and valves on exterior piping and ductwork shall be covered with metal jacketing to match pipe and duct covers.

### 3.7 TERMINATION OF INSULATION

- A. The termination of all insulation on pipes, at uninsulated valve connections, or unions, flexible connections, etc., shall be beveled and finished.

### 3.8 FACTORY INSULATED EQUIPMENT

- A. Domestic water storage tanks, domestic hot water heaters and other equipment as specified in the equipment schedules on the drawings shall be factory insulated.

END OF SECTION 220700

## SECTION 221100 - FACILITY WATER DISTRIBUTION

### PART 1 - GENERAL

#### 1.1 REQUIREMENTS

- A. Conform with the applicable provisions of the General Conditions, Supplementary Conditions, and the General Requirements.
- B. Lead Ban: All piping, solder, and flux used in the installation of piping systems delivering water for human consumption shall be lead free. The term lead free is defined as pipe which does not contain more than 0.25% lead, and solder and flux which does not contain more than 0.2% lead. Solder shall be 95/5 tin antimony, alloy Sb5, conforming to FS QQ-S-571.

#### 1.2 RELATED SECTIONS

- A. See Section 22 0500, for Common Work Requirements for Plumbing
- B. See Section 22 0504, for Pipe and Pipe Fittings for Plumbing.
- C. See Section 22 0700, for Plumbing Insulation.

#### 1.3 SCOPE

- A. Renovation including modifications to domestic cold water, hot water, recirculating hot water, backflow protection, shock absorbers, and associated miscellaneous accessories. This section shall include all work required to accommodate the renovation.

### PART 2 - PRODUCTS

#### 2.1 PIPING

- A. Domestic water piping, above grade within the building 3" and smaller shall be Type L hard drawn copper, ASTM B88. Domestic water piping including soft water piping larger than 4" shall be copper as specified herein.
- B. Proper insulating fittings, as specified in Section 22 0504, shall be installed to prevent electrolytic action between steel and copper piping connections.

#### 2.2 FITTINGS

- A. Fittings for copper piping shall be wrought copper or cast brass conforming to ANSI B16.22 and B16.23, with 95-5 solder joints, as specified in Section 22 0504.
- B. Mechanically formed tee connections and couplings for copper piping system as specified in Section 22 05 04, may be utilized where approved.
- C. Fittings for galvanized steel pipe shall be screwed Class 150, standard galvanized malleable iron conforming to ANSI B16.3

- D. Fittings for ductile iron pipe shall be flanged or mechanical joint conforming to ANSI/AWWA C110 and C111, Class 250 minimum, cement lined, with bituminous coating.

### 2.3 FLANGES

- A. Flanges for copper piping systems shall be Class 150 wrought copper or cast brass conforming to ANSI B16.24.
- B. Flange connections for valves and equipment shall match the rating and drilling of the valves and equipment furnished.
- C. Flanges for galvanized steel piping system shall be galvanized cast or malleable iron Class 125, standard threaded plain face companion flanges for flanged connections in threaded piping systems.
- D. Gaskets shall be 1/16" thick ring type or full face non-asbestos material suitable for the temperatures and pressure application.
- E. Flange bolting shall be carbon steel machine bolts or studs and hex nuts, ASTM A307, Grade B.

### 2.4 JOINTS

- A. Joints in copper piping system shall be made using approved "lead-free" solder and flux as described herein and approved by all applicable codes and regulations. Surfaces to be soldered shall be cleaned bright by manual or mechanical means.
- B. All joints shall be properly fluxed with a non-corrosive "lead-free" type flux manufactured to approved standards, Federal Specification QQ-S-517. Joints for copper piping systems for cold water 3" and smaller and hot water 2" and smaller shall be made using composition 95-5 tin-antimony solder. Composition 15% silver solder shall be used for all other piping sizes and for all underground joints.

### 2.5 SHOCK ABSORBERS

- A. Furnish and install factory sealed shock absorbers conforming to Federal Specification WW-P-541 at locations shown on the drawings and/or as outlined by Plumbing Drainage Institute Standard WH-201. Josam, Precision, Jay R. Smith, Wade, Watts, Zurn or equivalent.

### 2.6 VALVES

- A. Valves other than automatic control valves are specified in Section 22 0523, Valves.
- B. Automatic control valves shall be as specified in Section 25 0000, Integrated Automation, except for automatic control valves furnished as a part of equipment packages, including hot water generating equipment, as specified on the equipment schedule.

### 2.7 PUMPS

- A. Pumps shall be of the type and capacity listed in the equipment schedule. Pumps shall be selected so that the motors will not overload under any operating condition. Furnish one

spare mechanical seal of each size required in conjunction with the pumps furnished under this Contract. All base mounted pumps shall have drain pans with tapped pipe connections and 3/4" drain line extended to floor drain. Pumps shall be installed so that they may be removed without the removal of the associated piping. All pumps for potable water applications shall have bronze or stainless-steel body and trim.

- B. Domestic water inline recirculating pumps shall be as specified on the drawings, or approved substitution.

## 2.8 BACKFLOW PROTECTION

- A. All cross-contamination control shall be provided to ensure that no installation of the potable water supply piping system shall be made in a manner that will allow used, unclean, polluted, or contaminated water or substances to enter the domestic potable water system.
- B. All backflow devices and assemblies shall be approved by the applicable Administration Authorities and shall be installed according to all applicable codes, regulations, and manufacturer's instructions. Installation shall allow for required access and clearance for required testing, maintenance, and repair.
- C. Reduced pressure backflow preventer assembly shall be furnished and installed by the Contractor. Backflow preventer size and arrangement shall be as indicated on the drawings, and shall be as manufactured by Watts, or equivalent. All costs, fees, and permits required shall be secured and paid for by the Contractor, unless otherwise indicated.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Piping installation shall conform to the requirements of Section 22 0500, Common Work Requirements for Plumbing and Section 22 0504, Pipe and Pipe Fittings for Plumbing. Installation of specialties shall conform to the requirements of Section 22 0505, Piping Specialties for plumbing.
- B. Insulating Fittings: Insulating unions shall be furnished and installed at all connections between dissimilar metals.
- C. Valves: Each water service main, branch main and branch to a group of two or more fixtures shall be valved. Stop valves shall be as specified under fixtures.
- D. Flexible Connections: If the Contractor uses a pipe material other than copper to connect to the city water main, provide mechanical joints at the connection point and also either a swing joint or expansion joint at a point 5 ft. outside the building to prevent failure of piping caused by differential settling of building and piping systems. The expansion joint material shall be suitable for domestic water usage and compatible with the sterilization chemicals.
- E. Testing: Arrange for testing backflow devices as required by the local health authorities.

### 3.2 TESTS

- A. All water piping, hot and cold, shall be made tight under a hydrostatic test pressure of 150 lbs. per square inch and maintained without pressure loss for a minimum of four (4) hours.

No caulking of joints will be permitted. Any joint found to leak under this test shall be broken, remade and a new test applied.

### 3.3 STERILIZATION

- A. All new water piping shall be charged with a chlorine solution containing not less than 50 PPM available chlorine. The solution shall remain in the piping for a period of 24 hours, during which time valves shall be opened and closed to permit a small flow of the solution. At the end of 24 hours, the solution shall be tested and must contain a residual of at least 5-10 PPM chlorine. The system shall then be drained and flushed to provide satisfactory potable water before final connection is made to the existing distribution system.
- B. The Contractor shall submit a sample of the water, after sterilization and flushing for testing by an approved laboratory. A copy of the acceptable test report shall be submitted to the Owner's Representative prior to substantial completion.

### 3.4 BACKFLOW PROTECTION

- A. Protection: All plumbing fixtures, faucets with hose connections, and all other equipment having plumbing connections shall have their water supplies protected against back-siphonage. Refer to drawings for backflow preventers to be used for different applications.
- B. Testing: Arrange for testing backflow devices as required by the local health authorities.

END OF SECTION 221100

## SECTION 223 00 – CONDENSING GAS WATER HEATERS

### 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 packaged, factory-fabricated and -assembled, gas-fired, condensing heaters, trim, and accessories for generating hot water.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: Include performance data, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: For heaters, heater trim, and accessories. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Include diagrams for power, signal, and control wiring.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Submit the following for heaters, accessories, and components:
  - 1. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  - 2. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- B. Source quality-control reports.
- C. Field quality-control reports.
- D. Warranty: Special warranty specified in this Section.
- E. Other Informational Submittals:
  - 1. ASME Stamp Certification and Report: Submit "H" stamp certificate of authorization, as required by authorities having jurisdiction.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For heaters to include in operation, and maintenance manuals.

## 1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. ASME Compliance: Fabricate and label heaters to comply with ASME Boiler and Pressure Vessel Code.
- C. ASHRAE/IESNA 90.1 Compliance: heaters shall have minimum efficiency according to "Gas and Oil Fired Boilers - Minimum Efficiency Requirements."
- D. DOE Compliance: Minimum efficiency shall comply with 10 CFR 430, Subpart B, Appendix N, "Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers."
- E. UL Compliance: Test heaters for compliance with UL 795, "Commercial-Industrial Gas Heating Equipment." heaters shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.

## 1.7 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Installation Manual.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of heaters that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period for Condensing Heaters: 10 years from date of Substantial Completion on heat exchanger.

## PART 2 - PRODUCTS

### 2.1 CONDENSING WATER HEATERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings Hamilton Engineering EVO or approved substitution.
- C. Description: Factory-fabricated, -assembled, and -tested, water-tube condensing heater with heat exchanger sealed pressure tight; flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls. Hydronic heating service only. The heater shall be certified and listed by Intertek ETL under ANSI Z21.13, CSA 4.9 heater test standard for the US and Canada. The Heater shall comply with the energy efficiency requirements of the ASHRAE 103 Standard. The Heater shall meet U.S. Environmental Protection Agency and Department of Energy guidelines for "Energy Star" efficiency. The Heater shall have been tested and certified by a third party listed and certified testing agency to have the following:

1. The Heater shall operate at high-fire with a minimum thermal efficiency of 90% when supplied with 160°F entering water.
  2. The Heater shall operate at thermal efficiency of 99.8% when supplied with 54°F entering water.
  3. The Heater shall operate at a combustion efficiency of up to 94.7%
  4. The Heater shall have a rating for Oxides of Nitrogen (NO<sub>x</sub>) of 30 ppm or less, when corrected to 3% O<sub>2</sub>.
  5. The Heater shall have an AFUE rating of 93.7% or greater.
  6. The Heater shall operate at altitudes up to 9000 feet above sea level without additional parts or loss of BTU output.
- D. Heat Exchanger: The heat exchanger shall be constructed entirely of 316L stainless steel and shall bear the ASME “H” stamp for 160 PSI working pressure and shall be National Board listed.
- E. Combustion Chamber: Shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The stainless steel combustion chamber shall be designed to drain condensation to the bottom of the heat exchanger assembly, keeping the primary combustion chamber free of excess moisture. The heater shall contain an integral non-return valve in the vent connection and proprietary fan and multiple appliance control algorithms, providing for the ability to utilize a common inlet and exhaust vent for up to 8 appliances when coupled together for a common load.
- F. Burner: The burner shall be a premix design and constructed of high temperature stainless steel to provide a full input burner port loading ratio of 1050 btu/sq. in or greater. Burner shall be suitable for firing with natural gas or propane.
- G. Blower: Centrifugal fan with ECM drive to operate during each burner firing sequence, to prepurge and postpurge the combustion chamber, and to provide 5:1 modulating firing rates for maximum efficiency.
- H. Gas Train: Shall be supplied with a negative pressure gas valve providing precise control of the air-gas offset ratio and maximum firing rate. The gas valve outlet shall be coupled to an air gas mixing venturi with a full port gas valve outlet and a free air inlet of no less than 2.5 times greater than the gas valve outlet area.
- I. Ignition: The ignition system shall be direct-spark ignition with integrated flame sensor. Hot-surface ignition shall not be accepted
- J. Condensate Drain: The heater shall contain a built-in condensate drain trap that shall allow condensation to drain freely from the heat exchanger assembly, while providing a water trapping height of a minimum of 1.5 times the maximum fan outlet pressure. This trap shall contain an integral clean out that allows complete access and cleaning of the condensate trap assembly without opening the appliance or shutting it down. The safety control system shall incorporate a pressure switch that monitors the condensate drain system for any restriction causing a back up and shall shut the appliance down and display a fault code to indicate such a condition exists.
- K. Casing:
1. Jacket: Sheet metal, with snap-in or interlocking closures.
  2. Control Compartment Enclosures: NEMA 250, Type 1A.
  3. Finish: Painted or stainless steel.



4. Combustion-Air Connections: Inlet and vent duct collars.
5. Mounting base to secure EVO.
  - a. The heater shall be supplied with a seismic rated and certified welded steel rack and legs that will be fabricated from 2" x 3/16" inch tubular iron and Unistrut™. The base for the rack legs will also have threaded openings for supplied leveling bolts and factory drilled holes to allow for securing the stand to the floor. The stand shall be factory primed.
  - b. Seismic Fabrication Requirements: Fabricate mounting base and attachment to heater pressure vessel, accessories, and components with reinforcement strong enough to withstand seismic forces defined in Section 230548 "Vibration and Seismic Controls for HVAC" when mounting base is anchored to building structure.

L. Characteristics and Capacities:

1. Heating Medium: Hot water.
2. Design Water Pressure Rating: 160 psig
3. Safety Relief Valve Setting: 150 psig .
4. Entering-Water Temperature: see Schedule.
5. Leaving-Water Temperature: see Schedule.
6. Design Water Flow Rate: per heater manufacturer requirements.
7. Minimum Water Flow Rate: per heater manufacturer requirements.
8. Design Pressure Drop: per heater manufacturer requirements.
9. Minimum Efficiency AFUE: 93.7 percent.
10. Minimum Thermal Efficiency: 90 percent at high fire with 160°F incoming water and 20°F delta T.
11. Minimum Combustion Efficiency: up to 94.7 percent.
12. Heater Input: see Schedule.
13. Heater Output Capacity: see Schedule.
14. Gas Pressure: 4" to 14" water column.
15. Electrical Characteristics:
  - a. Volts: 208 V.
  - b. Phase: Single.
  - c. Hertz: 60.
  - d. Full-Load Amperes: see Schedule.
  - e. Minimum Circuit Ampacity: see Schedule.
  - f. Maximum Overcurrent Protection: see Schedule.

2.2 TRIM

- A. Safety Relief Valve: ASME rated and sized as required.
- B. Pressure and Temperature Gage: Minimum 2-inch- diameter, combination water-pressure and -temperature gage. Gages shall have operating-pressure and -temperature ranges so normal operating range is about 50 percent of full range.
- C. Heater Air Vent: Automatic or Manual.
- D. Drain Valve: Minimum NPS 3/4 hose-end ball valve.

- E. Circulation Pump: Non-overloading pumps with motor having lubricated bearings; designed to operate at specified heater pressures and temperatures; sized for heater required flow rates.
- F. Condensate Neutralizer: Each condensing heater system shall be supplied with condensate neutralizer. The neutralizer shall be factory engineered and sized for the heater condensate capacity with adequate soak-time to bring the condensate to a pH of 7 and with sufficient volume of neutralizing agent to provide for 2000 hours of operation in a fully condensing application. The neutralizer shall be factory mounted with a single point drain connection for multiple heaters. The neutralizing agent shall be ½” – ¾” common limestone aggregate.

## 2.3 CONTROLS

- A. The heater shall utilize integrated control circuit and components. The control system shall have an electronic display for heater set-up, heater status, and heater diagnostics. All components shall be easily accessed and serviceable from the front of the jacket without removing any additional panels. The heater controls shall be equipped with the following:
  - 1. Manual reset high limit temperature control
  - 2. Automatic reset high limit
  - 3. Outlet water temperature sensor
  - 4. Return water temperature sensor
  - 5. Flue back pressure protection
  - 6. Water flow protection
  - 7. Built-in freeze protection.
- B. The heater shall be equipped with an outdoor air reset function that shall automatically operate when a 10,000-Ohm sensor is attached to the provided terminal strip.
- C. The heater shall automatically sense when an external 10,000-ohm sensor has been attached to the terminal strip and it shall become the primary sensor for temperature control. This sensor
- D. The heater controls shall contain proprietary fan and multiple appliance control algorithms, providing for the ability to utilize a common inlet and exhaust vent for up to 8 appliances when coupled together for a common load.
- E. The heater controls shall include a cascading control feature able to control up to 8 heaters in parallel using (1) system sensor and factory supplied interconnecting wiring from Master/Lead heater to Member/Lag heaters, allowing for continuously adjusting the reaction to load changes in precise BTU increments.
  - 1. No steps: increase or decrease in BTU by more than 1% at a time shall be allowed.
  - 2. Only the number of heaters required to meet set point are to be brought on.
  - 3. Heaters are to be shut down in same sequence they are brought online.
  - 4. Determination and assignment of Lead heater in light off and shut down sequence shall occur at 1 hour of burner on time intervals, to allow for no more than 1 hour in burn time difference per unit in the Cascade at any time.
  - 5. Smart PID Control system shall “learn” with each burn cycle as to how quickly or slowly set point was met and how precisely it was held. In subsequent burn cycles it shall automatically adjust its reaction rates (time, modulation range and rate of BTU change per second) to hold a closer difference to set point.
  - 6. When the entire Cascade is at 100% of capacity, a relay is closed providing the ability to turn on an additional heat source (additional Cascade, old heaters etc.).

- F. Building Automation System Interface: Factory install hardware and software to enable building automation system to monitor, control, and display heater status and alarms.
  - 1. Hardwired Points:
    - a. Monitoring: Flame on/off status and common trouble alarm.
    - b. Control: On/off operation or 0-10V hot water supply temperature set-point adjustment.
  - 2. A communication interface shall be provided with the building automation system. The communication interface shall enable building automation system operator to remotely control and monitor the heater from an operator workstation. Control features available, and monitoring points displayed, locally at heater control panel shall be available through building automation system.

## 2.4 ELECTRICAL POWER

- A. Single-Point Field Power Connection: Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.
- B. Multiple heaters shall be provided with a pre-wired power supply to heaters and heaters pumps with an individual service disconnect for each heater for a single-point field electrical connection.

## 2.5 PLUMBING KITS

- A. The Heater shall be provided with pre-piped manifolds for single point supply and return connections per the following:
  - 1. The manifolds shall be copper reverse return piping to eliminate any unwanted residual flow through off heaters. Each heater pump assembly shall have flanged 1/4-turn full port brass ball valves for isolation. All fittings shall be rated for design pressure applications. Piping shall be constructed in such a fashion as to allow it to remain in its finished position during shipping. All piping shall be air tested to a minimum of 100 PSI and checked to be free of leaks; all ball valves will be cycled during this pressure test to ensure their integrity. Piping is sized for maximum flow rate
  - 2. EVO Lead Free Compliance see Technical Bulletin TB028
- B. The Heater shall have a common gas manifold constructed of welded or threaded black steel pipe and shall contain a drip leg at the single point gas connection. The common gas manifold shall contain stainless steel flexible tubing to each heater, as well as an individual brass 1/4 turn gas-rated shutoff valve. The entire gas piping system shall be factory engineered and installed prior to shipment. Piping shall be constructed in such a fashion as to allow it to remain in its finished position during shipping. All piping shall be air tested to a minimum of 30 PSI and checked to be free of leaks; all ball valves will be cycled during this pressure test to ensure their integrity. Piping is sized for maximum flow rate.

## 2.6 VENTING KITS

- A. The Heater shall have common vent manifolds constructed of AL 29-4C stainless steel rated to minimum of 5" w.c. positive pressure and shall contain the appropriate pitch for condensate to

drain. Provide with vertical vent terminal, roof passage thimble, indoor wall plate, vent adapter, condensate trap, and sealant. Provide cap on roof per drawings. The common vent manifolds shall each contain (2) condensate drain fittings that shall be routed through a condensate trap containing a removable clean-out cap and then on to the Condensate Neutralizer. There shall be no more than two vent pieces per heater in addition to the required condensate drain fittings for the entire common vent manifold. Common vent manifolds shall carry the UL 795 approval, each system shall have up to (2) heaters with (1) air manifold and (1) exhaust manifold. Systems utilizing individual heater vent/air piping shall not be allowed. The combustion air intake shall be stainless steel and shall be provided with horizontal vent terminal, inlet air coupling, and sealant.

## 2.7 SOURCE QUALITY CONTROL

- A. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.
- B. Test and inspect factory-assembled heaters, before shipping, according to ASME Boiler and Pressure Vessel Code.
- C. Allow Owner access to source quality control testing of Heaters. Notify Architect 14 days in advance of testing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Before heater installation, examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, and piping and electrical connections to verify actual locations, sizes, and other conditions affecting heater performance, maintenance, and operations.
  - 1. Final heater locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.
- B. Examine mechanical spaces for suitable conditions where heaters will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 HEATER INSTALLATION

- A. Install heaters on factory-supplied rack or directly on equipment room as required based on boiler manufacturer's installation instructions. Heaters must be installed level and anchored to floor or wall as required.
- B. Install gas-fired heaters according to NFPA 54.
- C. Assemble and install heater trim.
- D. Install electrical devices furnished with heater but not specified to be factory mounted.

- E. Install control wiring to field-mounted electrical devices.

### 3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to heater to allow service and maintenance.
- C. Install piping from condensate neutralizer drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.
- D. Connect gas piping to heater gas-train inlet with union. Piping shall be at least full size of gas train connection. Provide a reducer if required.
- E. Connect hot-water piping to supply- and return-heater piping manifolds.
- F. Install piping from safety relief valves to nearest floor drain.
- G. Heater Venting:
  - 1. Install flue venting kit and combustion-air intake.
  - 2. Flue venting and combustion air intake must be installed in accordance with NFPA 54 and all manufacturer's installation instructions.
  - 3. The flue shall be AL29-4C sealed, category IV vent material. The air inlet pipe shall be AL29-4C sealed pipe.
  - 4. Connect full size to heater connections. Comply with requirements in Section 235100 "Breechings, Chimneys, and Stacks."
- H. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- I. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

### 3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
  - 1. Perform installation and startup checks according to manufacturer's written instructions.
  - 2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.

3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
  - a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level and water temperature.
  - b. Set field-adjustable switches and circuit breaker trip ranges as indicated.
- D. Remove and replace malfunctioning units and retest as specified above.
- E. Prepare test and inspection reports.
- F. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide one visit to Project during other than normal occupancy hours for this purpose.
- G. Performance Tests:
  1. Engage a factory-authorized service representative to inspect component assemblies and equipment installations, including connections, and to conduct performance testing.
  2. Heaters shall comply with performance requirements indicated, as determined by field performance tests. Adjust, modify, or replace equipment to comply.
  3. Perform field performance tests to determine capacity and efficiency of heaters.
    - a. Test for full capacity.
    - b. Test for heater efficiency at 20, 40, 60, 80, 100, 80, 60, 40, and 20 percent of full capacity. Determine efficiency at each test point.
  4. Repeat tests until results comply with requirements indicated.
  5. Provide analysis equipment required to determine performance.
  6. Provide temporary equipment and system modifications necessary to dissipate the heat produced during tests if building systems are not adequate.
  7. Notify Architect in advance of test dates.
  8. Document test results in a report and submit to Architect.

### 3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain heaters. A minimum of (8) hours shall be allocated for Owner personnel training. Manufacturer representative shall provide notification of training session a minimum of (1) week in advance.

END OF SECTION 223400

## SECTION 22 70 00 - FACILITY NATURAL GAS SYSTEM

### PART 1 - GENERAL

#### 1.1 REQUIREMENTS

- A. Conform with applicable provisions of the General Conditions and Supplemental General Conditions.

#### 1.2 RELATED SECTIONS

- A. Section 22 05 00, Common Work Requirements for Plumbing.
- B. Section 22 05 04, Pipe and Pipe Fittings.

#### 1.3 SCOPE

- A. Complete building natural gas piping system including meters, regulators, and miscellaneous accessories.

### PART 2 - PRODUCTS

#### 2.1 PIPING

- A. Above Ground Piping Exposed Inside of Building:
  - Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with Class 150 black malleable iron threaded fittings conforming to ASME B16.3.
  - Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.
  - EXCEPTIONS:
    - a. All exposed piping 1½ inches and smaller located within areas utilized as return air plenums shall have welded joints with Schedule 40 socket welded forged steel fittings conforming to ASME B16.11.
- B. Above Ground Piping Concealed Inside of Building (Includes above all ceilings, within partitions, within chases, and all non-accessible locations):
  - Piping 1½ inches and smaller shall be seamless Schedule 40 black steel, ASTM A106 or ASTM A53 Type "S", Grade A or B, with welded joints with Schedule 40 socket welded forged steel fittings conforming to ASME B16.11.
  - Piping 2 inches and larger shall be Type "S" seamless or Type "E" electric resistance welded Schedule 40 black steel, ASTM A53, Grade A or B, with Schedule 40 wrought carbon steel fittings, ASTM A 234 and butt weld joints.
  - EXCEPTIONS:
    - Threaded piping 1½ inches and smaller may be installed in lieu of welded provided that all piping is encased within steel sleeve vented to the exterior of the building. Sleeve piping shall be Schedule 10 black steel pipe conforming to ASTM A53, Grade A or B, electric resistance welded or seamless, with roll-grooved ends. Sleeve pipe couplings shall be Victaulic Style 75 with Grade T nitrile gasket. Sleeve fittings shall be Victaulic grooved malleable or steel. Sleeve piping and fittings must be two pipe sizes, but not less than 1 inch larger than encased gas piping.

## 2.2 FITTINGS

- A. Fittings for steel piping 2" and smaller shall be threaded or welded as described in Section 2.1 above. Threaded fittings shall be Class 150 standard black malleable iron conforming to ANSI B16.3. Weld fittings shall be either standard weight steel butt-weld fittings conforming to ANSI B16.9, or forged steel socket-weld fittings, 2000-pound Schedule 40 conforming to ANSI B16.11.
- B. Fittings for steel piping 2-1/2" and larger shall be standard weight steel butt-weld fittings conforming to ANSI B16.9.

## 2.3 FLANGES

- A. Flanges for steel piping system shall be forged steel, weld neck, or slip-on, 1/16" raised face Class 150 flanges conforming to ANSI B16.5.
- B. Flange connections for valves and equipment shall match the rating and drilling of the valves and equipment furnished.
- C. Where specifically required by the application, black cast iron Class 125 standard threaded plain face companion flanges may be utilized for flanged connections in threaded piping systems.
- D. Gaskets shall be 1/16" thick full face non-asbestos material suitable for the temperatures and pressure application.
- E. Flange bolting shall be carbon steel machine bolts or studs and hex nuts, ASTM A307, Grade B.

## 2.4 VALVES

- A. Valves shall be as specified in Section 23 0523, Valves.
- B. Valves used in conjunction with gas piping shall be approved for the required service.

## 2.5 PIPING SUPPORTS

- A. Piping hangers and supports shall be in accordance with Section 23 0504.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Piping installation shall conform to the requirements of Section 23 0500, Common Work Requirements for HVAC, and Section 23 0504, Pipe and Pipe Fittings. Installation of specialties shall conform to the requirements of Section 23 0505, Piping Specialties.
- B. Installation of piping and equipment shall be in accordance with applicable codes and regulations, including International Plumbing Code, International Mechanical Code, International Fuel and Gas Code, and NFPA No. 54.
- C. No gas piping shall be installed in or on the ground under any building or structure, and all exposed gas piping shall be at least 6-inches above grade.



- D. Gas piping supplying the building or facility shall be provided with a shut-off valve located outside the building and readily accessible. Where gas piping supplies multiple buildings or facilities, each building shall be provided with a shut-off valve as described herein.

### 3.2 EQUIPMENT AND APPLIANCE CONNECTIONS

- A. All gas fired equipment, and appliances shall be connected to the gas piping system in an approved manner and shall be furnished with a shut-off valve and union installed ahead of the unit. Connections shall in no case be less than the unit inlet connection size and shall be rigidly connected, except as otherwise shown on the drawings and allowed by codes and regulations.

### 3.3 DRIPS

- A. Accessible capped drip pockets shall be furnished at low points in piping system, connections to appliances and equipment, and other locations where condensation may tend to collect.

### 3.4 VENTS

- A. All gas regulators and other required devices installed within the building shall be vented to the outside of the building in accordance with manufacturer's requirements, codes, and regulations.

### 3.5 TESTS

- A. All gas piping shall be pressure tested using air, CO<sub>2</sub>, or nitrogen in accordance with the applicable codes and regulations, including International Plumbing, Mechanical Code, NFPA No. 54, and City of Port Arthur Fire Department.

- B. All new rough-in distribution piping and affected portions of existing systems connected to, shall be subjected to a pneumatic test pressure utilizing clean, dry air and must be demonstrated to be absolutely tight when subjected to the pressures and time durations listed herein. All equipment and components designed for operating pressures of less than the test pressure shall not be connected to the piping system during test.

Systems on which the normal operating pressure is less than 0.5 pounds per square inch gauge (psig), the test pressure shall be 5.0 psig and the time interval shall be 30 minutes.

Systems on which the normal operating pressure is between 0.5 psig and 5.0 psig, the test pressure shall be 1.5 times the normal operating pressure or 5.0 psig, whichever is greater, and the time interval shall be 30 minutes.

Systems on which the normal operating pressure is 5.0 psig or greater, the test pressure shall be 1.5 times the normal operating pressure, and the time interval shall be one (1) hour.

END OF SECTION 227000

## SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Supplementary Conditions, and Division 1 Specification Sections apply to all Sections of Division 26.
- B. The requirements listed under General Conditions and Supplementary Conditions and the General Requirements are applicable to this section and all subsequent sections of Division 26 and form a part of the contract.
- C. See Division 1, Submittals for additional requirements.

#### 1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements of electrical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1:
  - 1. Submittals
  - 2. Coordination Drawings
  - 3. Record Documents
  - 4. Maintenance Manuals
  - 5. Rough-Ins
  - 6. Electrical Installations
  - 7. Cutting and Patching

#### 1.3 ELECTRICAL DIVISION INDEX

Section 26 0500	Common Work Results for Electrical
Section 26 0502	Electrical Demolition
Section 26 0519	Low Voltage Electrical Power Conductors and Cables
Section 26 0526	Grounding and Bonding for Electrical Systems
Section 26 0529	Hangers and Supports for Electrical Systems
Section 26 0533	Raceway and Boxes for Electrical Systems
Section 26 0553	Identification for Electrical Systems
Section 26 2416	Panelboards
Section 26 2726	Wiring Devices
Section 26 2816	Enclosed Switches and Circuit Breakers

#### 1.4 CODES AND PERMITS

- A. Perform electrical work in strict accordance with the applicable provisions of the National Electrical Code, Latest Edition; National Electric Safety Code, 2023; the International Building Code, 2018 as adopted and interpreted by the State of Texas, City of Brenham, and the National Fire Protection Association (NFPA Regulations), current adopted edition. Provide all materials and labor necessary to comply with rules, regulations and ordinances. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern. The Contractor shall hold and save the Engineer free and harmless

from liability of any nature or kind arising from his failure to comply with codes and ordinances.

- B. Secure and pay for all permits necessary for performance of the work. Pay for all utility connections unless otherwise specified herein.
- C. The following lists applicable codes and standards that, as a minimum, shall be followed.

Applicable county and state electrical codes, laws and ordinances.

National Electrical Manufacturer's Association Standards

National Electrical Code

National Electrical Safety Code

Underwriters Laboratories, Inc. Standards

American National Standards Institute

American Society for Testing Materials Standards

Standards and requirements of local utility companies

National Fire Protection Association Standards

Institute of Electrical and Electronics Engineers Standards

Insulated Cable Engineers Association

Occupational Safety and Health Act

Uniform Fire Code

Americans with Disabilities Act

Commercial and Industrial Insulation Standards (MICA)

#### 1.5 RECORD DRAWINGS

- A. Maintain a complete and accurate set of marked up blue-line prints showing information on the installed location and arrangement of all electrical work, and in particular, where changes were made during construction. Use red color to indicate additions or corrections to prints, green color to indicate deletions, and yellow color to indicate items were installed as shown. Keep record drawings accurate and up-to-date throughout the construction period. Record drawings may be reviewed and checked by the Engineer during the construction and in conjunction with review and approval of monthly pay requests. Include copies of all addenda, RFI's, bulletins, and change orders neatly taped or attached to record drawing set. Transmit drawings to the Engineer at the conclusion of the project for delivery to the Owner's Representative.
- B. Prepare record documents in accordance with the requirements in Division 1, Section "PROJECT RECORD DOCUMENTS." In addition to the requirements specified in Division 1, indicate

installed conditions for:

1. Major raceway systems, size and location, for both exterior and interior; locations of control devices; distribution and branch electrical circuitry; and fuse and circuit breaker size and arrangements.
2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
3. Approved substitutions, Contract Modifications, and actual equipment and materials installed.

#### 1.6 QUALIFICATIONS

- A. All electricians shall be skilled in their respective trade.

#### 1.7 SUBSTITUTIONS

- A. Identification of Division 26 equipment, fixtures, and materials listed within this Specification and in the Equipment Schedules on the drawings, which are identified by manufacturer's name, trade name, and/or model numbers are generally not meant to give preference to any manufacturer but are provided to establish the design requirements and standards.
- B. Equipment submitted for substitution must fit the space conditions leaving adequate room for maintenance around all equipment. A minimum of 36 inches, or more if required by Code, must be maintained clear in front of all electrical panels, starters, gutters, or other electrical apparatus. Submit drawings showing the layout, size and exact method of interconnection of conduit, wiring and controls, which shall conform to the manufacturer's recommendations and these specifications. The scale of these drawings shall be scale of Contract Drawings. The Contractor shall bear the excess costs, by any and all crafts, of fitting the equipment into the space and the system designated. Where additional labor or material is required to permit equipment submitted for substitution to function in an approved manner, this shall be furnished and installed by the Contractor without additional cost to the Owner.
- C. Equipment submitted for substitution shall be approved in writing by the Owner or his representative and shall be accompanied by the following:
  1. A sample of each item submitted for substitution shall accompany the submittal.
  2. Provide a unit price quotation with each item intended for substitution. Include a unit price for the specified item and a unit price for the intended substitute item. Provide a total (per item) of the differential payback to the Owner should the intended substitute item be approved as equivalent to that which is specified.
  3. Reimburse the Owner for the Architect/Engineer's additional services required to review and process substitutions.

#### 1.8 PRIOR APPROVAL

- A. The Engineer will not review submittals for electrical equipment prior to bid ("Prior Approvals"). Refer to specification sections and drawings for requirements and approved vendors.

#### 1.9 HAZARDOUS CONDITIONS

- A. Protruding metal (bolts, steel angles, etc.) potentially hazardous to maintenance and operation personnel, shall be cut back and/or protected to reduce the risk of injury.

#### 1.10 DEFINITIONS

- A. Definitions of terms will be found in the National Electrical Code.
- B. Whenever a term is used in this Specification, which is defined in the Code, the definition given will govern its meaning in this Specification.
- C. Whenever a technical term is used which does not appear in the Code, the definition to govern its meaning in these Specifications will be found in the Standard Dictionary of Electrical and Electronic Terms, published by the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, Piscataway, New Jersey 08855-1331.
- D. "Provide" means furnish, install, connect and test unless otherwise noted.

#### 1.11 SUBMITTALS

- A. The Contractor shall submit submittal brochures of equipment, fixtures and materials to be furnished under Division 26.
- B. Unauthorized Substitutions: If substitute materials, equipment or systems are installed without prior review or are installed in a manner which is not in conformance with the requirement of this Specification and for which the Contractor has not received a written review, removal of the unauthorized materials and installation of those indicated or specified shall be provided at no change in contract amount.
- C. Install equipment in accordance with the manufacturer's recommendations. Provide accessories and components for optimum operation as recommended by the manufacturer.
- D. Costs for the preparation, correction, delivery, and return of the submittals shall be borne by the Contractor.
- E. Complete data must be furnished showing performance, quality and dimensions. No equipment or materials shall be purchased prior to receiving written notification from the Architect/Engineer that submittals have been reviewed and marked either "NO EXCEPTIONS TAKEN" or "EXCEPTIONS AS NOTED." Submittals returned marked "EXCEPTIONS AS NOTED" do not require resubmittal provided that the Contractor agrees to comply with all exceptions noted in the submittal, and so states in a letter to the Architect/Engineer.
- F. Review of Submittals: Submittals will be reviewed with reasonable promptness, but only for conformance with the design concept of the Project and for conformance with the information indicated on the Drawings and stated in the Specifications. Review of a separate item as such will not indicate review of the assembly in which the item functions. Review of submittals shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, nor for errors or omissions in the submittals; or for the accuracy of dimensions and quantities, the adequacy of connections, and the proper and acceptable fitting, execution, functioning and completion of the work. Review shall not relieve the Contractor of responsibility for the equipment fitting within the allotted space shown on the drawings with all clearances required for equipment operation, service and maintenance including a minimum of 3 feet clear in front of all electrical equipment and panels as defined by the National Electrical Code. Any relocation of mechanical and/or electrical equipment, materials and systems required to comply with minimum clearances shall be provided by the Contractor without additional cost under the Contract.
- G. Shop Drawings: Unless the following information is included, shop drawings will be returned

unchecked:

1. Cover sheet for each submittal, listing equipment, products, and materials, and referencing data and sections in Specifications and drawings. Clearly reference project name and provide space for a review stamp.
  2. Cover sheet shall clearly identify deviations from specifications, and justification.
  3. Include all related equipment in a single submittal to allow complete review. Similar equipment may be submitted under a common cover sheet.
  4. Size, dimensions, and weight of equipment.
  5. Equipment performance under specified conditions, not a copy of scheduled data on drawings.
  6. Indicate actual equipment proposed, where data sheets indicate more than one (1) device or equipment.
- H. Use of substitutions reviewed and checked by the Engineer does not relieve the Contractor from compliance with the Contract Documents. Contractor shall bear all extra expense resulting from the use of any substitutions where substitutions affect adjoining or related work required in this Division or other Divisions of this Specification.
- I. If Contractor substitutes equipment for that drawn to scale on the drawings, he shall prepare a 1/4" = 1'-0" installation drawing for each equipment room where a substitution is made, using dimensions of substituted equipment, and including piping, and electrical equipment requirements, to verify that equipment will fit space with adequate clearances for maintenance. This 1/4" = 1'-0" fabrication drawing shall be submitted, for review by the Engineer with the shop drawing submittals of the substituted. Failure to comply with this requirement will result in the shop drawings being returned unchecked.
- J. Submittals and one (1) resubmittal will be reviewed by the Architect/Engineer. If the Contractor fails to provide the required data with his second submittal, he will be charged for the third and subsequent reviews.
- K. See Division 1 for additional submission requirements.
- L. The Contractor shall submit a digital copy of submittal brochures for review. Brochures shall be submitted within thirty (30) days after contract award.
- 1.12 USE OF CADD FILES
- A. Under certain conditions, the Contractor will be permitted the use of the Engineer's CADD files for documentation of as-builts, submittals, or coordination drawings.
  - B. The Engineer shall be compensated for the time required to format the CADD files for delivery to the Contractor. Such work may include removal of title blocks, professional seals, calculations, proprietary information, etc.
  - C. The Contractor shall complete the enclosed License, Indemnity and Warranty Agreement, complete with contractor's name, address, and Contractor's Representative signature prior to request for CADD file usage.
- 1.13 DRAWINGS AND SPECIFICATIONS
- A. Electrical drawings are diagrammatic but shall be followed as closely as actual construction and

work of the other sections shall permit. Size and location of equipment is drawn to scale wherever possible. Do not scale from electrical drawings.

- B. Drawings and specifications are for the assistance and guidance of the Contractor. Exact locations, distances, and levels will be governed by the building. The Contractor shall make use of data in all the Contract Documents to verify information at the building site.
- C. In any case where there appears to be a conflict between that which is shown on the electrical drawings, and that shown in any other part of the Contract Documents, the Contractor shall notify and secure directions from the Architect.
- D. Drawings and specifications are intended to complement each other. Where a conflict exists between the requirements of the drawings and/or the specifications, request clarification. Do not proceed with work without direction.
- E. The Architect shall interpret the drawings and the specifications. The Architect's interpretation as to the true intent and meaning thereof and the quality, quantity, and sufficiency of the materials and workmanship furnished there under shall be accepted as final and conclusive.
- F. In the case of conflicts not clarified prior to the bidding deadline, use the most costly alternative (better quality, greater quantity, and larger size) in preparing the bid. A clarification will be issued to the successful bidder as soon as feasible after the award and, if appropriate, a deductive change order will be issued.
- G. Where items are specified in the singular, this division shall provide the quantity as shown on drawings plus any spares or extras indicated on the drawings or in the specifications.
- H. Investigate structural and finish conditions and arrange work accordingly. Provide all fittings, equipment, and accessories required for actual conditions.

#### 1.14 SIMILAR MATERIALS

- A. All items of a similar type shall be products of the same manufacturer.
- B. Contractor shall coordinate among suppliers of various equipment to assure that similar equipment type is product of the same manufacturer.
- C. Examples of similar equipment types include but are not limited to:
  - 1. Power Circuit Breakers
  - 2. Enclosed Case Circuit Breakers
  - 3. Panelboards
  - 4. Disconnects
  - 5. Fuses

#### 1.15 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

#### 1.16 GUARANTEE-WARRANTY

- A. The following guarantee is a part of the specifications and shall be binding on the Contractor:

"The Contractor guarantees that this installation is free from ALL defects. He agrees to replace or repair any part of the installation which may fail within a period of one (1) year after date established below, provided that such failure is due to defects in the materials or workmanship or to failure to follow the specifications and drawings. Warranty of the Contractor-furnished equipment or systems shall begin on the date the system or equipment is placed in operation for beneficial use of the Owner or occupancy by the Owner, whichever occurs first; such date to be determined in writing by means of issuing a 'Certificate of Substantial Completion', AIA Form G704."

- B. The extent of guarantees or warranties by Equipment and/or Materials Manufacturers shall not diminish the requirements of the Contractor's guarantee-warranty to the Owner.
- C. All items of electrical equipment furnished and installed under Division 26 shall be provided with a full two (2) year parts and labor warranty.

## PART 2 - PRODUCTS

### 2.1 QUALITY OF MATERIALS

- A. All equipment and materials shall be new and shall be the standard product of manufacturers regularly engaged in the production of electrical equipment and shall be the manufacturer's latest design. Specific equipment, shown in schedules on drawings and specified herein, is to set forth a standard of quality and operation.

### 2.2 ALTITUDE RATINGS

- A. Unless otherwise noted, all specified equipment capacities are for an altitude of **3000** feet above sea level and adjustments to manufacturer's ratings must be made accordingly.

### 2.3 EQUIPMENT REQUIREMENTS

- A. The electrical requirements for equipment specified or indicated on the drawings are based on information available at the time of design. If equipment furnished for installation has electrical requirements other than those indicated on the electrical drawings, make all adjustments to wire and conduit size, controls, over current protection and installation as required to accommodate the equipment supplied. Delineate all adjustments to the drawings reflecting the electrical system in a submittal to the Contract Administrator immediately upon knowledge of the required adjustment.
- B. Approved Equipment and Conductors: ALL equipment and conductors shall be listed and labeled by a nationally recognized testing laboratory (NRTL). The NRTL shall be listed by the federal occupational safety and health administration.

## PART 3 - EXECUTION

### 3.1 COOPERATION WITH OTHER TRADES

- A. Coordinate all work so that the construction operations can proceed without harm to the Owner from interference, delay, or absence of coordination. The Contractor shall be responsible for the size and accuracy of all openings.



### 3.2 DRAWINGS

- A. The electrical drawings show the general arrangement of all lighting, power, special systems, equipment, etc., and shall be followed as closely as actual building construction and work of other trades will permit. Whenever discrepancies occur between plans and specifications, the most stringent shall govern. All Contract Documents shall be considered as part of the work. Coordinate with architectural, mechanical, and structural drawings. Because of the small scale of the electrical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Provide all fittings, boxes, and accessories as may be required to meet actual conditions. Should conditions necessitate a rearrangement of equipment, such departures and the reasons therefore, shall be submitted by the Contractor for review in the form of detailed drawings showing the proposed changes. No changes shall be made without the prior written approval. All changes shall be marked on record drawings.
- B. Should any doubt or question arise in respect to the true meaning of the drawings or specifications, the question shall be submitted in writing.
- C. Installation of all equipment shall be arranged to provide all clearances required for equipment operation, service, and maintenance, including minimum clearance, as defined by the National Electrical Code (NEC).
- D. The installation of all concealed electrical systems shall be carefully arranged to fit within the available space without interference with adjacent structural and mechanical systems.

### 3.3 ELECTRICAL INSTALLATIONS

- A. General: Sequence, coordinate, and integrate the various elements of electrical system, materials, and equipment. Comply with the following requirements:
  - 1. Coordinate electrical systems, equipment, and materials installation with all other building components.
  - 2. Verify all dimensions by field measurements.
  - 3. Arrange for chases, slots, and openings in all other building components during progress of construction, to allow for electrical installations.
  - 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
  - 5. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
  - 6. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum clearance possible.
  - 7. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
  - 8. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components.
  - 9. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
  - 10. Install access panel or doors where units are concealed behind finished surfaces.

11. Install systems, materials, and equipment giving right-of-way priority to systems requiring installation at a specified slope.

### 3.4 FIELD MEASUREMENTS

- A. No extra compensation shall be claimed or allowed due to differences between actual dimensions, including dimensions of equipment, fixtures and materials furnished, and those indicated on the drawings. Contractor shall examine adjoining work and shall report any work which must be corrected. Review of submittal data in accordance with paragraph "Submittals" shall in no manner relieve the Contractor of responsibility for the proper installation of the electrical work within the available space. Installation of equipment and systems within the building space shall be carefully coordinated by the Contractor.

### 3.5 EQUIPMENT SUPPORT

- A. Provide support for equipment to the building structure. Provide all necessary structures, inserts, sleeves, firestops and hanging devices for installation of equipment. Coordinate installation of devices. Verify with the Architect that the devices and supports are adequate as intended and do not overload the building's structural components in any way.

### 3.6 PAINTING

- A. All finish painting of electrical systems and equipment will be under "Painting," unless equipment is hereinafter specified to be painted.
- B. All equipment shall be provided with factory applied standard finish, unless otherwise specified.
- C. Touch-Up: If the factory finish on any equipment is damaged in shipment or during construction of the building, the equipment shall be refinished to the satisfaction of the Engineer and Owner's Representative.

### 3.7 PROTECTION OF MATERIALS AND EQUIPMENT

- A. The Contractor shall be responsible for the protection of all work, materials and equipment furnished and installed under this section of the specifications, whether incorporated in the building or not.
- B. All items of electrical equipment shall be stored in a protected weatherproof enclosure prior to installation within the building or shall be otherwise protected from the weather in a suitable manner approved by the Owner's Representative.
- C. The Contractor shall provide protection for all work and shall be responsible for all damage done to property, equipment and materials. Storage of materials within the building shall be approved by the Owner's Representative prior to such storage.
- D. Conduit openings shall be closed with caps or plugs or covered to prevent lodgment of dirt or trash during the course of installation. At the completion of the work, fixtures, equipment and materials shall be cleaned and polished thoroughly and delivered in a condition satisfactory to the Engineer.

### 3.8 EXCAVATION

- A. Provide all excavation, trenching and backfilling required.
- B. Slope sides of excavations to comply with codes and ordinances. Shore and brace as required for stability of excavation.

### 3.9 ERECTION OF METAL SUPPORTS AND ANCHORAGE

- A. Cut, fit, and place miscellaneous metal fabrications accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- B. Field Welding: Comply with AWS "Structural Welding Code."

### 3.10 ERECTION OF WOOD SUPPORTS AND ANCHORAGE

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorage accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- B. Select fastener sizes 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 wood members.
- C. Attach to substrates as required to support applied loads.

### 3.11 APPLICATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturer's printed application instructions applicable to products and applications indicated, except where more stringent requirements apply.
  - 1. Comply with recommendations of ASTM C 962 for use of elastomeric joint sealants.
  - 2. Comply with recommendations of ASTM C 790 for use of acrylic-emulsion joint sealants.
- B. Immediately after sealant application and prior to time shinning or curing begins, tool sealants to form smooth, uniform beads; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
- C. Firestopping Sealant: Provide sealant, including forming, packing, and other accessory materials, to fill openings around electrical services penetrating floors and walls, to provide firestops with fire-resistance ratings indicated for floor or wall assembly in which penetration occurs. Comply with installation requirements established by testing and inspecting agency.

### 3.12 INSTALLATION OF ACCESS DOORS

- A. Set frames accurately in position and securely attached to supports, with face panels plumb and level in relation to adjacent finish surfaces.
- B. Adjust hardware and panels after installation for proper operation.

### 3.13 CUTTING AND PATCHING

- A. Perform cutting and patching in accordance with Division 1, Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 1, the following requirements apply:
1. Perform cutting, fitting, and patching of electrical equipment and materials required to:
    - a. Remove and replace defective Work.
    - b. Remove and replace Work not conforming to requirements of the Contract Documents.
    - c. Remove samples of installed Work as specified for testing.
    - d. Install equipment and materials in existing structures.
    - e. Upon written instructions from the Contracting Officer, uncover and restore Work to provide for Contracting Officer observation of concealed Work.
  2. Cut, remove, and legally dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new Work.
  3. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.
  4. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
  5. During cutting and patching operations, protect adjacent installations.
  6. Patch existing finished surfaces and building components using new materials matching existing materials and experienced installers.

### 3.14 MANUFACTURER'S INSTRUCTIONS

- A. All equipment shall be installed in strict accordance with recommendations of the manufacturer. If such recommendations conflict with plans and specifications, the Contractor shall submit such conflicts to the [Architect] [Engineer] [Owner's Representative] [Contracting Officer] who shall make such compromises as he deems necessary and desirable.

### 3.15 CONCRETE BASES AND HOUSEKEEPING PADS

- A. Install concrete bases and housekeeping pads under all freestanding electrical equipment unless otherwise noted.
- B. Contractor shall be responsible for the accurate dimensions of all pads and bases and shall furnish and install all anchor bolts, etc. Coordinate weight of concrete bases and housekeeping pads with the structural engineer.
- C. All concrete bases and housekeeping pads shall conform to the requirements specified under Division 3, Concrete, portions of these specifications. Pad foundations shall be 4" high minimum, unless otherwise indicated on the drawings. Chamfer edges shall be 1". Faces shall be free of voids and rubbed smooth with Carborundum block after stripping forms. Tops shall be level. Provide dowel rods or other required material in floor for lateral stability and anchorage.
- D. Equipment anchor bolts shall be set in a galvanized pipe or sheet metal sleeves 1" larger than bolt diameter. Anchor bolts shall be high strength steel J shape. Anchor bolt design shall be arranged and paid for by the Contractor.

3.16 TESTS

- A. All tests shall be conducted in the presence of the designated and authorized Owner's Representative. The Contractor shall notify the Engineer and Owner's Representative one week in advance of all tests. The Contractor shall furnish all necessary equipment, materials, and labor to perform the required tests.

3.17 OPERATION AND MAINTENANCE INSTRUCTIONS

- A. The Contractor shall furnish the complete operating and maintenance instructions covering all units of electrical equipment herein specified together with parts lists. Furnish two (2) copies of all the literature; each shall be suitably bound in loose leaf book form.
- B. Operating and maintenance manuals as required herein shall be submitted for review not less than two (2) weeks prior to the date scheduled for the Contractor to provide Operating and Maintenance Instructions to the Owner as specified herein.
- C. Upon completion of all work and all tests, Contractor shall furnish the necessary skilled labor and helpers for operating the electrical systems and equipment for a period of five (5) days of eight (8) hours each. During this period, the Contractor shall instruct the Owner or his representative in the operations, adjustment and maintenance of all equipment furnished. Contractor shall provide at least two weeks notice in advance of this period, with a written schedule of each training session, the subject of the session, the Contractors' representatives who plan to attend the session, and the time for each session.

3.18 CERTIFICATIONS

- A. Before receiving final payment, certify in writing that all equipment furnished, and all work done is in compliance with all applicable codes mentioned in these specifications. Submit certifications and acceptance certificates to the [**Contracting Officer,**] [**Architect,**] [**Engineer,**] including proof of delivery of O&M manuals, spare parts required, and equipment warranties which shall be bound with O&M manuals.

3.19 INTERRUPTING SERVICES

- A. The Contractor shall coordinate the installation of all work within the building in order to minimize interference with the operation of existing building electrical telephone, fire alarm, and utility systems during construction. Connections to existing systems requiring the interruption of service within the building shall be carefully coordinated with the Owner to minimize system downtimes. Requests for the interruption of existing services shall be submitted in writing a minimum of two (2) weeks before the scheduled date. Absolutely no interruption of the existing services will be permitted without the written review.

3.20 OPERATION PRIOR TO ACCEPTANCE

- A. Operation of equipment and systems installed by the Contractor for the benefit of the Owner prior to substantial completion will be allowed providing a written agreement between the Owner and the Contractor has established warranty and other responsibilities to the satisfaction of both parties.
- B. Operation of equipment and systems installed by the Contractor, for the benefit of the Contractor, except for the purposes of testing and balancing will not be permitted without a written agreement

between the Owner and the Contractor establishing warranty and other responsibilities.

3.21 SITE VISITS AND OBSERVATION OF CONSTRUCTION

- A. The Architect/Engineer will make periodic visits to the project site at various stages of construction in order to observe the progress and quality of various aspects of the Contractor's work, in order to determine in general if such work is proceeding in accordance with the Contract Documents. This observation by the Architect/Engineer however, shall in no way release the Contractor from his complete responsibility to supervise, direct, and control all construction work and activities, nor shall the Architect/Engineer have authority over, or a responsibility to means, methods, techniques, sequences, or procedures of construction provided by the Contractor or for safety precautions and programs, or for failure by the Contractor to comply with all law, regulations, and codes.

END OF SECTION 260500

**DIVISION 26 SUBSTITUTION REQUEST FORM (SRF)**

TO: RAMIREZ-SIMON ENGINEERING, LLC  
PROJECT: Blinn Mechanical Projects – Brenham – Melcher + BCPA2

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section: \_\_\_\_\_ Page: \_\_\_\_\_ Paragraph/Line: \_\_\_\_\_ Specified Item: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_

Attach complete product description, drawings, photographs, performance and test data, and other information necessary for evaluation. Identify specific Model Numbers, finishes, options, etc.

1. Will changes be required to building design in order to properly install proposed substitutions?  YES  NO  
If YES, explain: \_\_\_\_\_

2. Will the undersigned pay for changes to the building design, including engineering and drawing costs, caused by requested substitutions? YES  NO

3. List differences between proposed substitutions and specified item.

Specified Item	Proposed Substitution
_____	_____
_____	_____
_____	_____

4. Does substitution affect Drawing dimensions? YES  NO

5. What affect does substitution have on other trades? \_\_\_\_\_

6. Does the manufacturer's warranty for proposed substitution differ from that specified? YES  NO   
If YES, explain: \_\_\_\_\_

7. Will substitution affect progress schedule? YES  NO   
If YES, explain: \_\_\_\_\_

8. Will maintenance and service parts be locally available for substitution? YES  NO   
If YES, explain: \_\_\_\_\_

9. Is substitution identical in appearance and function to specialized product? YES  NO

Submitting Firm: _____	Date: _____
Address: _____	
Signature: _____	Telephone: _____

<b>For Engineer's Use Only</b>		
Accepted: _____	Not Accepted: _____	Received Too Late: _____
By: _____	Date: _____	
Remarks: _____		
_____		

**CAD AGREEMENT**

**PROJECT:** Blinn Mechanical Projects – Brenham – Melcher + BCPA2

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**CONTRACTOR'S REPRESENTATIVE**

Signature: \_\_\_\_\_ Company Name: \_\_\_\_\_

Name: \_\_\_\_\_ Address 1: \_\_\_\_\_

Title: \_\_\_\_\_ Address 2: \_\_\_\_\_

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



## SECTION 260502 - DEMOLITION FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Supplementary Conditions, and Division 1 Specification Sections apply to this Section.
- B. See Section 26 0500 for Common Work Results for Electrical.

#### 1.2 SCOPE OF WORK

- A. Provide all material, equipment and labor as required to remove, relocate and/or reconnect all electrical work identified in these specifications and indicated on the drawings.

#### 1.3 SUMMARY

- A. This Section includes limited scope, general construction materials and methods for application with electrical installations as follows:
  - 1. Selective demolition including:
    - a. Nondestructive removal of materials and equipment for reuse or salvage as indicated.
    - b. Dismantling electrical materials and equipment made obsolete by these installations.
  - 2. Excavation for underground utilities and services, including underground raceways.
  - 3. Miscellaneous metals for support of electrical materials and equipment.
  - 4. Nailers, blocking, fasteners, and anchorage for support of electrical materials and equipment.
  - 5. Joint sealers for sealing around electrical materials and equipment; and for sealing penetrations in fire and smoke barriers, floors, and foundation walls.
  - 6. Access panels and doors in walls, ceilings, and floors for access to electrical materials and equipment.

#### 1.4 PROJECT CONDITIONS

- A. Conditions affecting selective demolition: The following project conditions apply:
  - 1. Protect adjacent materials indicated to remain. Install and maintain dust and noise barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove protection and barriers after demolition operations are complete.
  - 2. Locate, identify, and protect electrical services passing through demolition area and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, install temporary services for affected areas.
- B. Conditions affecting excavations: The following project conditions apply:
  - 1. Maintain and protect existing building services which transit the area affected by selective demolition.
  - 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created

- by excavation operations.
3. Existing utilities: Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.
  4. Remove existing underground utilities indicated to be removed.
    - a. Uncharted or incorrectly charted utilities: Contact utility owner immediately for instructions.
    - b. Provide temporary utility services to affected areas. Provide minimum of 48-hour notice to Owner's Representative prior to utility interruption.
  5. Use of explosives is not permitted.

## PART 2 - PRODUCTS

### 2.1 MATERIALS AND EQUIPMENT

- A. Verify field measurements and circuiting arrangements as shown on drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to Architect/Engineer before disturbing existing installation.
- D. Beginning of demolition means Contractor accepts existing conditions.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Disconnect and remove electrical systems in walls, floors, and ceilings scheduled for removal.
- B. Coordinate utility service outages with Owner a minimum of 72 hours prior to outage.
- C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- D. Existing electrical services: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switch overs and connections. Obtain permission from the Owner's Representative at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

### 3.2 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Demolish and extend existing electrical work under provisions of this section.
- B. Remove, relocate and extend existing installations to accommodate new construction. Recircuit and reconnect all electrical lighting, outlets, and equipment not scheduled for removal that have become disconnected due to demolition work.
- C. Remove abandoned wiring to source of supply.

- D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
  - E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit serving them is removed. Provide blank cover for abandoned outlets which are not removed. Provide blank cover for abandoned outlets which are not removed.
  - F. Disconnect and remove abandoned panelboards and distribution equipment.
  - G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
  - H. Disconnect and remove abandoned luminaries. Remove brackets, stems, hangers, and other accessories.
  - I. Repair adjacent construction and finishes damaged during demolition and extension work. Any damage to building, piping or equipment shall be repaired by skilled mechanics of the trades involved at no additional cost to the Owner.
  - J. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
  - K. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.
  - L. Removal and replacement of ceiling tile(s) to perform work operations shall be the responsibility of the Contractor. The Contractor shall be responsible for replacement of any ceiling tiles or framework that may become damaged at no cost to the Owner
  - M. Housekeeping Pads and Equipment Foundations: Remove for all equipment removal. Backfill as required, compact to 95 percent modified Proctor density, and pour floor slab or resurface floor to match existing.
  - N. Conduit in Concealed Locations: Remove conductors, cap both ends of conduit, and label conduit as "Abandoned" at both ends. Where conduit runs below grade, cap both ends of conduit and abandon in place. Where conduit runs below floor slab, additionally, chip out concrete around conduit, remove conduit to bottom of slab level, and patch floor to match existing.
  - O. Motor Control Centers: Where MCCs serve equipment to be removed and no new equipment is to be served, leave starter in place, remove existing labels, and install new label "Spare Size x Starter."
- 3.3 CLEANING AND REPAIR
- A. Clean and repair existing materials and equipment which remain or are to be reused.
  - B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

- C. Luminaries: Remove existing luminaries for cleaning, as indicated on drawings. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts and broken electrical parts.
- D. Materials and equipment to be salvaged: Remove, demount, and disconnect existing electrical materials and equipment indicated to be removed and salvaged, and deliver materials and equipment to the location designated for storage.
- E. Disposal and cleanup: Remove from the site and legally dispose of demolished materials and equipment not indicated to be salvaged.

#### 3.4 INSTALLATION

- A. Install relocated materials and equipment under the provisions of this section.

#### 3.5 ITEMS SALVAGED TO OWNER

- A. Items salvaged to Owner are as indicated on drawings. Move and store in dry location as directed. Refuse materials and items not salvaged shall be removed from the site and legally disposed of.

END OF SECTION 260502

## SECTION 260519 - LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes building wires and cables and associated splices, connectors, and terminations for wiring systems rated 600 volts and less.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 26, Section 26 0529, Hangers and Supports for Electrical Systems for supports and anchors for fastening cable directly to building finishes.
  - 2. Division 26, Section 26 0553, Identification for Electrical Systems for insulation color coding and wire and cable markers.

#### 1.3 SUBMITTALS

- A. Field test reports indicating and interpreting test results relative to compliance with performance requirements of testing standard.

#### 1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: In addition to the requirements specified in Division 1 Section "Quality Control Services," an independent testing agency shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, or shall be a full member company of the International Electrical Testing Association (NETA).
  - 1. Testing Agency's Field Supervisor Qualifications: A person currently certified by the NETA National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
  - 1. The Terms "Listed, Labeled, and Identified": As defined in the National Electrical Code, Article 100.
- C. Comply with NFPA 70 National Electrical Code for components and installation.

#### 1.5 SEQUENCING AND SCHEDULING

- A. Coordination: Coordinate layout and installation of cable with other installations.
- B. Revise locations and elevations from those indicated as required to suit field conditions.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wire and cable according to NEMA WC-26.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Wires and Cables:
    - a. Prysmian
    - b. Encore Wire
    - c. Southwire Co.
  - 2. Connectors for Wires and Cables:
    - a. AMP, Inc, a TE Connectivity Company.
    - b. Anderson Power Products, An Ideal Company.
    - c. Electrical Products Division, 3M Corporation.
    - d. O-Z Gedney, an Emerson Industrial Automation company.
    - e. ABB
    - f. Bridgeport Fittings

### 2.2 BUILDING WIRES AND CABLES

- A. UL listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Applications" Article.
- B. NEMA WC70/ICEA S-95-658 : Nonshielded 0-2kv Cable
- C. Conductor Material: soft-drawn annealed copper. Specify as follows:
  - 1. General Power and lighting: Minimum size #12 AWG; solid conductors for #12 AWG and #10 AWG and stranded conductors for #8 AWG and larger.
  - 2. Stranded conductors for connections to motors, generators, and other vibrating equipment (all sizes).
  - 3. Control (field installed): Minimum size #14 AWG; stranded conductors all sizes.
- D. Outdoor Conductor Material: 600V Type XHHW-2 insulated copper conductors; above and below grade.

### 2.3 CONNECTORS AND SPLICES

- A. UL-listed factory-fabricated wiring connectors of size, ampacity rating, material, and type and class for application and for service indicated. Select to comply with Project's installation requirements and as specified in Part 3 "Applications" Article.
- B. Use listed motor lead splicing kits for insulating and sealing bolted pigtail and in-line connections in terminal boxes of motors rated 1HP and larger.
- C. Provide splicing kits that include a 1 kV dielectric rated sleeve with thick walls to resist abrasion and puncture.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine raceways and building finishes to receive wires and cables for compliance with

installation tolerances and other conditions. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 APPLICATIONS

- A. Branch Circuits: Type THHN/THWN-2, in raceway.
- B. Fire Alarm Circuits: Type THHN/THWN-2, copper conductor, in raceway.
- C. Class 1 Control Circuits: Type THHN/THWN-2, copper conductor, in raceway.
- D. Class 2 Control Circuits: Type THHN/THWN, in raceway.
- E. Ampacity: Use 60°C rating only for sizes #14 AWG through #1 AWG unless otherwise noted.

### 3.3 INSTALLATION

- A. Install wires and cables as indicated, according to manufacturer's written instructions and the NECA "Standard of Installation."
- B. Do not install building wiring that is listed for dry/indoor locations-only until the building is dried-in.
- C. Do not use multiwire branch circuits. Provide a dedicated grounded (neutral) conductor for each branch circuit that requires a neutral.
- D. Metal-Clad Cable or MC Cable may be used for light switches and receptacles whips of no more than 25 ft and as follows:
  - 1. Only in general occupancy rooms, such as offices, classrooms and conference rooms. Do not use in Rooms such as Mechanical Rooms, Electrical Rooms, Laboratories, or any other high equipment rooms or laboratories.
  - 2. MC Cable must be installed to a minimum of NECA standards, additionally must be installed in straight runs with definite bends only and must be well secured. Well secured shall be no more than 1" deflection for straight runs and 3" of deflection for bends at 3 lbs. of force.
- E. Remove existing wire from raceway before pulling in new wire and cable.
- F. Pull conductors into raceway simultaneously where more than one is being installed in same raceway.
  - 1. Use pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation.
  - 2. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- G. Install exposed cable, parallel and perpendicular to surfaces or exposed structural members, and follow surface contours where possible.
- H. Conductor Splices: In branch circuits and if kept to minimum. No splices in services or feeders.
  - 1. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

- 2. Use splice and tap connectors that are compatible with conductor material.
- I. Do not splice service conductors between normal and emergency/standby power supplies (e.g. utility transformers and generators) and the service or power transfer equipment.
- J. Wiring at Outlets: Install with at least 12 inches of slack conductor at each outlet.
- K. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

#### 3.4 FIELD QUALITY CONTROL

- A. Testing: Upon installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
  - 1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA Standard ATS, Section 7.3.1. Certify compliance with test parameters.
- B. Correct malfunctioning products at site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.

END OF SECTION 260519



SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.2 SUMMARY

- A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Qualification Data: For firms and persons specified in 'Quality Assurance' Article.
- C. Field Test Reports: Submit written test reports to include the following:
  - 1. Test procedures used.
  - 2. Test results that comply with requirements.
  - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the National Electrical Testing Association and that is acceptable to authorities having jurisdiction.
  - 1. Testing Agency's Field Supervisor: Person currently certified by the National Electrical Testing Association to supervise onsite testing specified in Part 3.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 1. Comply with UL 467.
- C. Comply with NFPA 70; for overhead line construction and medium voltage underground construction, comply with IEEE C2.
- D. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering

products that may be incorporated into the work include, but are not limited to, the following:

1. Grounding Conductors, Cables, Connectors, and Rods:
  - a. Burndy; Part of Hubbell Electrical Systems.
  - b. Dossert; AFL Telecommunications LLC.
  - c. ERICO, Inc.
  - d. Fushi Copperweld Inc.
  - e. Galvan Industries, Inc.; Electrical Products Division, LLC.
  - f. Harger Lightning and Grounding.
  - g. ILSCO.
  - h. O-Z/Gedney; A Brand of the Emerson Electrical Co.
  - i. Robbins Lightning, Inc.

## 2.2 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 26, Section 26 0519, Low-Voltage Electrical Power.
- B. Equipment Grounding Conductors: Insulated with green colored insulation.
- C. Isolated Ground Conductors: Insulated with green colored insulation with yellow stripe. On feeders with isolated ground, use colored tape, alternating bands of green and yellow tape to provide a minimum of three bands of green and two bands of yellow.
- D. Grounding Electrode Conductors: Stranded cable.
- E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
- F. Bare Copper Conductors: Comply with the following:
  1. Solid Conductors: ASTM B3.
  2. Assembly of Stranded Conductors: ASTM B8.
  3. Tinned Conductors: ASTM B33.
- G. Copper Bonding Conductors: As follows:
  1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
  2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
  3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
  4. Tinned Bonding Jumper: Tinned copper tape, braided copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

## 2.3 CONNECTOR PRODUCTS

- A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.
- B. Bolted Connectors: Bolted pressure type connectors, or compression type, copper or copper-alloy.
- C. Welded Connectors: Exothermic welded type, in kit form, and selected per manufacturer's written instructions.

- D. Irreversible Compression Connectors: In kit form, selected per manufacturer's written instructions.
- E. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless exothermic-type wire terminals, and long-barrel, two-bolt connection to ground bus bar

#### 2.4 GROUNDING ELECTRODES

- A. Ground Rods: Sectional type copper-clad steel.
  - 1. Size: 3/4" by 120 inches in length.
- B. Chemical Electrodes: UL listed, copper tube, straight or L-shaped, filled with nonhazardous chemical salts, terminated with a 4/0 bare conductor. Provide backfill material recommended by manufacturer.
- C. Test Wells: Provide handholes as specified in Division 26, Section 26 0543, Underground Ducts and Raceways for Electrical Systems.
- D. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 12 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.
- E. Ground Electrode Backfill Material:
  - 1. Bentonite clay or equivalent commercial ground enhancement backfill material for ground rods and cable type electrodes.
  - 2. Backfill material, when at 300% moisture content ((weight of water/weight of material) x 100) shall have a resistivity of approximately 250 ohm-cm and a pH of 8 to 10.

### PART 3 - EXECUTION

#### 3.1 APPLICATION

- A. Use only copper conductors for both insulated and bare grounding conductors.
- B. In raceways, use insulated equipment grounding conductors.
- C. Exothermic-Welded Connections or Irreversible Compression Connections: Use for connections to structural steel and for underground connections, except those at test wells.
- D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
- E. Ground Rod Clamps at Test Wells: Use bolted pressure clamps with at least two (2) bolts.
- F. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
  - 1. Use insulated spacer; space one-inch from wall and support from wall six-inches above finished floor, unless otherwise indicated.
  - 2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the specified height above the floor.

- G. Underground Grounding Conductors: Use bare tinned copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade or bury 12 inches above duct bank when installed as part of the duct bank.

### 3.2 EQUIPMENT GROUNDING CONDUCTORS

- A. Comply with NFPA 70, Article 250 for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
- B. Install insulated equipment grounding conductors in all feeders and circuits.
- C. Busway Supply Circuits: Install insulated equipment grounding conductor from the grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
- D. Computer Outlet Circuits: Install insulated equipment grounding conductor in branch circuit runs from computer area power panels or power distribution units.
- E. X-Ray Equipment Circuits: Install insulated equipment grounding conductor in circuits supplying x-ray equipment.
- F. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- G. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure and install a separate equipment grounding conductor. Isolate equipment grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- H. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.
- I. Air Duct Equipment Circuits: Install an equipment grounding conductor to duct mounted electrical devices operating at 120V and more, including air cleaners and heaters. Bond conductor to each unit and to air duct.
- J. Water Heater, Heat Tracing, and Antifrost heating Cables: Install a separate equipment grounding conductor to each electric water heater, heat tracing, and antifrost heating cable. Bond conductor to heater units, piping, connected equipment and components.
- K. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
  - 1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4 x 2 x 12-inch grounding bus.

2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

- L. Metal Poles Supporting Outdoor Lighting Fixtures: Provide a grounding electrode in addition to installing a separate equipment grounding conductor with supply branch circuit conductors.
- M. Common Ground Bonding with Lightning Protection System: Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor and install in conduit.

### 3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
  - 1. Where grounding conductors are required in PVC conduit or bare, do not completely encircle conduit or conductor with steel clamp or other steel devices.
  - 2. Where grounding conductor is routed in steel conduit, bond both ends of conduit to grounding conductor with full size conductor.
- B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic welded connectors for outdoor locations, unless a disconnect type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.
- C. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
- D. Water Meter Piping: Use braided type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
- E. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans blowers, electric heaters, and air cleaners. Use braided type bonding straps.
- F. Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.
- G. Install one test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor.

### 3.4 CONNECTIONS

- A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
  - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make

- contact points closer to order of galvanic series.
  2. Make connections with clean, bare metal at points of contact.
  3. Make aluminum-to-steel connections with stainless steel separators and mechanical clamps.
  4. Make aluminum-to-galvanized steel connections with tin plated copper jumpers and mechanical clamps.
  5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Exothermic Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
- C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure type connectors.
- D. Non-contact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically non-continuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
- E. Connections at Test Wells: Use compression type connectors on conductors and make bolted and clamped type connections between conductors and ground rods.
- F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.
- G. Compression Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.
- H. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

### 3.5 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality control testing:
1. After installing grounding system, but before permanent electrical circuitry has been energized, test for compliance with requirements.
  2. Test completed grounding system at each location where a maximum ground resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two (2) full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall of potential method according to IEEE 81.
  3. Provide drawings locating each ground rod and ground rod assembly and other grounding

electrodes, identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

- a. Equipment Rated 500 kVA and Less: 10 ohms
- 4. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

### 3.6 GRADING AND PLANTING

- A. Restore surface features, including vegetation, at areas disturbed by work of this section. Re-establish original grades, unless otherwise indicated. If sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Include application of topsoil, fertilizer, lime, seed, sod, sprig, and mulch. Restore disturbed paving as indicated.

END OF SECTION 260526

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes secure support from the building structure for electrical items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.
- B. Related Sections: The following Sections contains requirements that relate to this Section:
  - 1. Division 26, Section 26 0500, Common Work Results for Electrical.
  - 2. Refer to other Division 26 sections for additional specific support requirements that may be applicable to specific items.

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
  - 1. Hanger and support schedule showing manufacturer's figure number, size, spacing, features, and application for each required type of hanger, support, sleeve, seal, and fastener to be used.
- C. Shop drawings indicating details of fabricated products and materials.

#### 1.4 QUALITY ASSURANCE

- A. Electrical Component Standard: Components and installation shall comply with NFPA 70, National Electrical Code.
- B. Electrical components shall be listed and labeled by UL, ETL, CSA, or other approved, nationally recognized testing and listing agency that provides third-party certification follow-up services.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work, shall include the following:
  - 1. Allied Tube & Conduit.
  - 2. Cooper B-Line, Inc.; a division of Eaton.
  - 3. Thomas & Betts Corporation.
  - 4. Unistrut; an Atkore International brand.



5. Wesanco, Inc.

2.2 COATINGS

- A. Coating: Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot-dip galvanized.

2.3 MANUFACTURED SUPPORTING DEVICES

- A. Raceway Supports: Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.
- B. Fasteners: Types, materials, and construction features as follows:
1. Expansion Anchors: Carbon steel wedge or sleeve type.
  2. Toggle Bolts: All steel springhead type.
  3. Powder-Driven Threaded Studs: Heat-treated steel, designed specifically for the intended service.
- C. Conduit Sealing Bushings: Factory-fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.
- D. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Provide plugs with number and size of conductor gripping holes as required to suit individual risers. Construct body of malleable-iron casting with hot-dip galvanized finish.
- E. U-Channel Systems: 16-gauge steel channels, with 9/16-inch-diameter holes, at a minimum of 8 inches on center, in top surface. Provide fittings and accessories that mate and match with U-channel and are of the same manufacture.

2.4 FABRICATED SUPPORTING DEVICES

- A. General: Shop or field fabricated supports or manufactured supports assembled from U-channel components.
- B. Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.
- C. Pipe Sleeves: Provide pipe sleeves of one of the following:
1. Sheetmetal: Fabricate from galvanized sheetmetal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate sleeves from the following gauge metal for sleeve diameter noted:
    - a. 3-inch and smaller: 20-gauge
    - b. 4-inch to 6-inch: 16-gauge
    - c. over 6-inch: 14-gauge
  2. Steel Pipe: Fabricate from Schedule 40 galvanized steel pipe.
  3. Plastic Pipe: Fabricate from Schedule 80 PVC plastic pipe.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.
- B. Coordinate with the building structural system and with other electrical installation.
- C. Raceway Supports: Comply with the NEC and the following requirements:
  - 1. Conform to manufacturer's recommendations for selection and installation of supports.
  - 2. Strength of each support shall be adequate to carry present and future load multiplied by a safety factor of at least four. Where this determination results in a safety allowance of less than 200 lbs, provide additional strength until there is a minimum of 200 lbs safety allowance in the strength of each support.
  - 3. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
  - 4. Support parallel runs of horizontal raceways together on trapeze-type hangers.
  - 5. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4-inch-diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.
  - 6. Space supports for raceways in accordance with Table I of this section. Space supports for raceway types not covered by the above in accordance with NEC.
  - 7. Support exposed and concealed raceway within 1 foot of an unsupported box and access fittings. In horizontal runs, support at the box and access fittings may be omitted where box or access fittings are independently supported and raceway terminals are not made with chase nipples or threadless box connectors.
  - 8. In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on raceway terminals.
- D. Vertical Conductor Supports: Install simultaneously with installation of conductors.
- E. Miscellaneous Supports: Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.
- F. In open overhead spaces, cast boxes threaded to raceways need not be supported separately except where used for fixture support; support sheetmetal boxes directly from the building structure or by bar hangers. Where bar hangers are used, attach the bar to raceways on opposite sides of the box and support the raceway with an approved type of fastener not more than 24 inches from the box.
- G. Support EMT and boxes using factory-fabricated components that comply with MFMA-4 standards and that are listed for the application. Do not use Caddy "B18" Series combination box/conduit hanger as manufactured by Pentair/Erico.

- H. Sleeves: Install in concrete slabs and walls and all other fire- rated floors and walls for raceways and cable installations. For sleeves through fire rated-wall or floor construction, apply UL listed firestopping sealant in gaps between sleeves and enclosed conduits and cables.
- I. Conduit Seals: Install seals for conduit penetrations of slabs on grade and exterior walls below grade and where indicated. Tighten sleeve seal screws until sealing grommets have expanded to form watertight seal.
- J. Fastening: Unless otherwise indicated, fasten electrical items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cable trays, busways, cabinets, panelboards, transformers, boxes, disconnect switches, and control components in accordance with the following:
  - 1. Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts on concrete or solid masonry, and machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheetmetal screws.
  - 2. Holes cut to depth of more than 1-1/2 inches in reinforced concrete beams or to depth of more than 3/4 inch in concrete shall not cut the main reinforcing bars. Fill holes that are not used.
  - 3. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration- and shock- resistant fasteners for attachments to concrete slabs.
- K. Tests: Test pull-out resistance of one of each type, size, and anchorage material for the following fastener types:
  - 1. Expansion anchors.
  - 2. Toggle bolts.
  - 3. Powder-driven threaded studs.
- L. Provide all jacks, jigs, fixtures, and calibrated indicating scales required for reliable testing. Obtain the Contracting Officer's approval before transmitting loads to the structure. Test to 90 percent of rated proof load for fastener. If fastening fails test, revise all similar fastener installations and retest until satisfactory results are achieved.

3.2 TABLE I: SPACING FOR RACEWAY SUPPORTS

Raceway Size, In.	Location	RMC & IMC (1)	EMT (1)
1/2-1	Any Location	7	7
1 & Larger	Any Location	10	10

NOTES:

- (1) Maximum spacing of supports (feet).
- (2) Maximum spacings for IMC above apply to straight runs only. Otherwise, the maximums for EMT apply.

Abbreviations: EMT Electrical metallic tubing.  
 IMC Intermediate metallic conduit.  
 RMC Rigid metallic conduit.

END OF SECTION 260529

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Raceways include the following:
  - 1. Rigid metal conduit.
  - 2. Intermediate metal conduit.
  - 3. Polyvinyl chloride (PVC) externally coated rigid steel conduit.
  - 4. PVC externally coated intermediate metal conduit.
  - 5. Electrical metallic tubing (EMT).
  - 6. Flexible metal conduit.
  - 7. Liquidtight flexible conduit.
  - 8. Rigid nonmetallic conduit.
  - 9. Wireway.
  - 10. Surface raceways.
- C. Boxes, enclosures, and cabinets include the following:
  - 1. Device boxes.
  - 2. Floor boxes.
  - 3. Outlet boxes.
  - 4. Pull and junction boxes.
  - 5. Cabinets and hinged cover enclosures.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. See Division 26, Section 26 0529, Hangers and Supports for Electrical Systems.
  - 2. See Division 26, Section 26 2726, Wiring Devices.

1.3 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for surface raceway, wireway and fittings, floor boxes, hinged cover enclosures, and cabinets.
- C. Shop drawings for nonstandard boxes, enclosures, and cabinets. Include layout drawings showing components and wiring.

1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70, National Electrical Code, for components and installation.

- B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
  - 1. The Terms "Listed and Labeled": As defined in the National Electrical Code, Article 100.
- C. Comply with NECA "Standard of Installation."
- D. Coordinate layout and installation of raceway and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide Products by of one of the following:
  - 1. AFC Cable Systems, Inc.
  - 2. Allied Tube & Conduit; a Tyco International Ltd. Co.
  - 3. Anamet Electrical, Inc.
  - 4. Electri-Flex Company.
  - 5. O-Z/Gedney; a brand of Emerson Electric Co.
  - 6. Picoma Industries, a division of Zekelman Industries.
  - 7. Republic Conduit.
  - 8. Robroy Industries.
  - 9. Southwire Company.
  - 10. Thomas & Betts Corporation.
  - 11. Western Tube and Conduit Corporation.
  - 12. Wheatland Tube Company; a division of Zekelman Industries.

### 2.2 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Intermediate Metal Conduit: ANSI C80.6.
- C. Plastic-Coated Steel Conduit and Fittings: NEMA RN 1.
- D. Plastic-Coated Intermediate Metal Conduit and Fittings: NEMA RN 1.
- E. Electrical Metallic Tubing and Fittings: ANSI C80.3 with set-screw or compression-type fittings.
- F. Flexible Metal Conduit: Aluminum.
- G. Liquidtight Flexible Metal Conduit: Flexible steel conduit with PVC jacket.
- H. Fittings: NEMA FB 1, compatible with conduit/tubing materials.

### 2.3 NONMETALLIC CONDUIT

- A. Rigid Nonmetallic Conduit (RNC): NEMA TC 2, Schedule 40 or 80 PVC.
- B. PVC Conduit and Tubing Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.

## 2.4 WIREWAYS

- A. Material: Sheet metal sized and shaped as indicated.
- B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireway as required for complete system.
- C. Select features where not otherwise indicated, as required to complete wiring system and to comply with NEC.
- D. Wireway Covers: Hinged type.
- E. Finish: Manufacturer's standard enamel finish.

## 2.5 SURFACE RACEWAY

- A. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceway.
- B. Surface Metal Raceway: Galvanized steel with snap-on covers. Finish with manufacturer's standard prime coating suitable for painting.
- C. Surface Nonmetallic Raceway: 2-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard color.

## 2.6 OUTLET AND DEVICE BOXES

- A. Sheet Metal Boxes: NEMA OS 1.
- B. Cast Metal Boxes: NEMA FB 1, type FD, cast ferrous alloy box with gasketed cover.
- C. Nonmetallic Boxes: NEMA OS 2.

## 2.7 FLOOR BOXES

- A. Floor Box: Cast metal, fully adjustable, rectangular.

## 2.8 PULL AND JUNCTION BOXES

- A. Small Sheet Metal Boxes: NEMA OS 1.
- B. Cast Metal Boxes: NEMA FB 1, cast aluminum with gasketed cover.

## 2.9 CABINETS AND ENCLOSURES

- A. Hinged Cover Enclosures: NEMA 250, steel enclosure with continuous hinge cover and flush latch. Finish inside and out with manufacturer's standard enamel.
- B. Cabinets: NEMA 250, type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate

wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of the raceway system. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 WIRING METHODS

- A. Outdoors: Use the following wiring methods, 3/4" minimum trade size:
  - 1. Exposed: Rigid or intermediate metal conduit.
  - 2. Concealed: Rigid or intermediate metal conduit.
  - 3. Underground, Single Run: Rigid nonmetallic conduit.
  - 4. Underground, Grouped: Rigid nonmetallic conduit.
  - 5. Connection to Vibrating Equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Liquidtight flexible metal conduit.
  - 6. Boxes and Enclosures: NEMA Type 3R or Type 4.
- B. Indoors: Use the following wiring methods, 3/4" minimum trade size except as noted below:
  - 1. Connection to Vibrating Equipment and Light Fixtures: (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Flexible metal conduit, except in wet or damp locations use Liquidtight flexible metal conduit, 1/2" trade size minimum.
  - 2. Connection to Light Fixtures: 1/2" trade size minimum, flexible metal conduit, except in wet or damp locations use Liquidtight flexible metal conduit, or solid connection using material conforming to requirements for materials specified in this Paragraph B.
  - 3. Damp or Wet Locations: Rigid steel conduit.
  - 4. Exposed: Electrical metallic tubing.
  - 5. Locations Subject to Physical Damage: Rigid or intermediate steel conduit.
  - 6. Corrosive Locations: Plastic coated rigid steel or rigid non-metallic conduit.
  - 7. Concealed: Electrical metallic tubing.
  - 8. Boxes and Enclosures: NEMA Type 1, except in damp or wet locations use NEMA Type 4, stainless steel.

#### 3.3 INSTALLATION

- A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
- B. Conceal conduit and EMT, unless otherwise indicated, within finished walls, ceilings, and floors.
- C. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot water pipes. Install horizontal raceway runs above water and steam piping.
- D. Install raceways level and square and at proper elevations. Provide adequate headroom.
- E. Complete raceway installation before starting conductor installation.

- F. Support raceway as specified in Division 26, Section 26 0529, Hangers and Supports for Electrical Systems.
- G. Use temporary closures to prevent foreign matter from entering raceway.
- H. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.
- I. Make bends and offsets so the inside diameter is not reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.
- J. Use raceway fittings compatible with raceway and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, except as otherwise indicated.
- K. Run concealed raceways with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions, except as otherwise indicated.
- L. Raceways Embedded in Slabs: Install in middle third of the slab thickness where practical and leave at least 1-inch concrete cover.
  - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
  - 2. Space raceways laterally to prevent voids in the concrete.
  - 3. Run conduit larger than 1-inch trade size (size 27) parallel to or at right angles to main reinforcement. When at right angles to reinforcement, place conduit close to slab support.
- M. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members and follow the surface contours as much as practical.
  - 1. Run parallel or banked raceways together, on common supports where practical.
  - 2. Make bends in parallel or banked runs from same center line to make bends parallel. Use factory elbows only where they can be installed parallel; otherwise, provide field bends for parallel raceways.
- N. Join raceways with fittings designed and approved for the purpose and make joints tight.
  - 1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
  - 2. Use insulating bushings to protect conductors.
- O. Tighten set screws of threadless fittings with suitable tool.
- P. Terminations: Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely, and install the locknuts with dished part against the box. Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box.
- Q. Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.
- R. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.
- S. Telephone and Signal System Raceways 2-Inch Trade Size and Smaller: In addition to the above



requirements, install in maximum lengths of 150 feet and with a maximum of two 90-deg bends or equivalent. Install pull or junction boxes where necessary to comply with these requirements.

- T. Install raceway sealing fittings according to the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:
  - 1. Where conduits enter or leave hazardous locations.
  - 2. Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.
  - 3. Where otherwise required by the NEC.
- U. Stub-Up Connections: Extend conduits through concrete floor for connection to freestanding equipment with an adjustable top or coupling threaded inside for plugs and set flush with the finished floor. Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used 6 inches above the floor. Install insulated grounding bushings on each conduit and bond to ground system. Where equipment connections are not made under this Contract, install screwdriver-operated threaded flush plugs flush with floor.
- V. Flexible Connections: Use maximum of 6 feet of flexible conduit for recessed and semi-recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use Liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.
- W. Do not install aluminum conduit embedded in or in contact with concrete.
- X. PVC Externally Coated Rigid Steel Conduit: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduit.
- Y. Underground 90-degree elbows 2-inch trade size or larger, use plastic coated or tape wrapped intermediate metal or rigid steel conduit. Comply with NEC for grounding.
- Z. Surface Metal Raceway: Install a separate green ground conductor in raceway from the junction box supplying the raceway to receptacle or fixture ground terminals.
  - 1. Select each surface metal raceway outlet box to which a lighting fixture is attached to be of sufficient diameter to provide a seat for the fixture canopy.
  - 2. Where a surface metal raceway is used to supply a fluorescent lighting fixture having central stem suspension with a backplate and a canopy (with or without extension ring), the backplate and canopy will serve as the outlet box and no separate outlet box need be provided.
  - 3. Provide surface metal raceway outlet box, in addition to the backplate and canopy, at the feed-in location of each fluorescent lighting fixture having end stem suspension.
  - 4. Where a surface metal raceway extension is made from an existing outlet box on which a lighting fixture is installed (provide a backplate slightly smaller than the fixture canopy), no additional surface mounted outlet box need be installed.
- AA. Set floor boxes level and adjust to floor surface.
- BB. Install hinged cover enclosures and cabinets plumb. Support at each corner.

- CC. Provide grounding connections for raceway, boxes, and components as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.
- DD. On all service, feeder, and branch circuit conduits, 2-inches and large, install grounding-type insulated bushings on each conduit entering all boxes, enclosures, and equipment. Bond conduit grounding bushing to a grounding bus in box, enclosure, or equipment with conductor sized per NEC 250-95. Do not use grounding conductor to bond bushing to grounding bus.
- EE. All exposed conduit, fittings, boxes, hangers, clips, supports, etc., in finished areas to be painted per the Architect's/Engineer's instructions.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that coatings, finishes, and cabinets are without damage or deterioration at Substantial Completion.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to PVC or paint finishes with matching touch-up coating recommended by the manufacturer.

### 3.5 CLEANING

- A. Upon completion of installation of system, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION 260533

## SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes identification of electrical materials, equipment, and installations.

#### 1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.
- C. Schedule of identification nomenclature to be used for identification signs and labels.
- D. Details of EIA/TIA 606 compliance for labeling.

#### 1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with EIA/TIA 606 for telephone, data, and fiber optic systems.

#### 1.5 SEQUENCING AND SCHEDULING

- A. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.
- B. Coordinate installing electrical identifying devices and markings prior to installing acoustical ceilings and similar finishes that conceal such items.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. American Labelmark Co.; Labelmaster Subsidiary
  2. Brady USA, Inc.; Industrial Products Div.
  3. Calpico, Inc.
  4. Carlton Industries, Inc.
  5. Champion American, Inc.
  6. Cole-Flex Corp.

7. D&G Sign and Label
8. EMED Co., Inc.
9. George-Ingraham Corp. (The)
10. Grimco, Inc.
11. Ideal Industries, Inc.
12. Kraftbilt
13. LEM Products, Inc.
14. Markal Corp.
15. National Band & Tag Co.
16. Panduit Corp.
17. Radar Engineers
18. Ready Made Sign Co.; Cornerstone Direct Corp. Div.
19. Seton Name Plate Co.
20. Standard Signs, Inc.

## 2.2 RACEWAY AND CABLE LABELS

- A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.
- B. Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.
  1. Color: Black legend on orange field.
  2. Legend: Indicates voltage.
- C. Adhesive Labels: Preprinted, flexible, self-adhesive vinyl. Legend is over-laminated with a clear, weather- and chemical-resistant coating.
- D. Pre-tensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic bands sized to suit the diameter of the line it identifies and arranged to stay in place by pre-tensioned gripping action when placed in position.
- E. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- F. Underground Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:
  1. Size: Not less than 6 inches wide by 4 mils thick.
  2. Compounded for permanent direct-burial service.
  3. Embedded continuous metallic strip or core.
  4. Printed Legend: Indicates type of underground line.
- G. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- H. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.
- I. Plasticized Card-Stock Tags: Vinyl cloth with preprinted and field-printed legends. Orange background, except as otherwise indicated, with eyelet for fastener.

- J. Aluminum-Faced Card-Stock Tags: Weather-resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inch thick, laminated with moisture-resistant acrylic adhesive, and punched for the fastener. Preprinted legends suit each application.
- K. Brass or Aluminum Tags: Metal tags with stamped legend, punched for fastener. Dimensions: 2 by 2 inches by 0.05 inch.

### 2.3 ENGRAVED NAMEPLATES AND SIGNS

- A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.
- B. Engraving stock, melamine plastic laminate, 1/16-inch minimum thick for signs up to 20 sq. in., 1/8 inch thick for larger sizes.
  - 1. Engraved Legend:
    - a. Normal Power – White letters on black face, unless noted otherwise on drawings.
  - 2. Punched for mechanical fasteners.
- C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched for fasteners, with colors, legend, and size as indicated or as otherwise required for the application. 1/4-inch grommets in corners for mounting.
- D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, non-fading, preprinted, cellulose acetate butyrate signs with 0.0396-inch, galvanized steel backing, with colors, legend, and size appropriate to the application. 1/4-inch grommets in corners for mounting.
- E. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

### 2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties with the following features:
  - 1. Minimum Width: 3/16 inch.
  - 2. Tensile Strength: 50 lb minimum.
  - 3. Temperature Range: Minus 40 to 185 deg F (Minus 4 to 85 deg C).
  - 4. Color: As indicated where used for color coding.
- B. Paint: Alkyd-urethane enamel over primer as recommended by enamel manufacturer.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install identification devices according to manufacturer's written instructions.
- B. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.
- C. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations

used for electrical identification with corresponding designations used in the Contract Documents or required by codes and standards. Use consistent designations throughout the Project.

- D. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.
- E. Self-Adhesive Identification Products: Clean surfaces of dust, loose material, and oily films before applying.
- F. Install painted identification as follows:
  - 1. Clean surfaces of dust, loose material, and oily films before painting.
  - 2. Prime Surfaces: For galvanized metal, use single-component, acrylic vehicle coating formulated for galvanized surfaces. For concrete masonry units, use heavy-duty, acrylic-resin block filler. For concrete surfaces, use clear, alkali-resistant, alkyd binder-type sealer.
  - 3. Apply one intermediate and one finish coat of silicone alkyd enamel.
  - 4. Apply primer and finish materials according to manufacturer's instructions.
- G. Identify Raceways and Exposed Cables with Color Banding: Band exposed and accessible raceways of the systems listed below for identification.
  - 1. Bands: Pre-tensioned, snap-around, colored plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches wide, completely encircling conduit, and place adjacent bands of 2-color markings in contact, side by side.
  - 2. Locate bands at changes in direction, at penetrations of walls and floors, at 20-foot maximum intervals in straight runs, and at 10 feet in congested areas.]
  - 3. Colors: As follows:
    - a. Fire-Alarm System: Red.
    - b. Fire-Suppression Supervisory and Control System: Red and yellow.
    - c. Combined Fire-Alarm and Security System: Red and blue.
    - d. Security System: Blue and yellow.
    - e. Mechanical and Electrical Supervisory System: Green and blue.
    - f. Telecommunications System: Green and yellow.
- H. Install Caution Signs for Enclosures Over 600 V: Use pressure-sensitive, self-adhesive label indicating system voltage in black, preprinted on orange field. Install on exterior of door or cover.
- I. Install Circuit Identification Labels on Boxes: Label externally as follows:
  - 1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.
  - 2. Concealed Boxes: Plasticized card-stock tags.
  - 3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.
- J. Color-Code Conductors: Secondary service, feeder, and branch circuit conductors throughout the secondary electrical system.
  - 1. 240/120-V or 208/120-V System: As follows:
    - a. Phase A: Black.
    - b. Phase B: Red.
    - c. Phase C: Blue.
    - d. Neutral: White.
    - e. Ground: Green.
  - 2. 480/277-V System: As follows:
    - a. Phase A: Brown.
    - b. Phase B: Orange.
    - c. Phase C: Yellow.

- d. Neutral: Grey.
- e. Ground: Green.
3. Factory-apply color the entire length of the conductors, except the following field-applied, color-coding methods may be used in lieu of factory-coded wire for phase conductor's sizes larger than No. 10 AWG and grounded conductors and grounding conductors larger than No. 6 AWG.
  - a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply the last 2 turns of tape with no tension to prevent possible unwinding. Use 1-inch wide tape in colors as specified. Adjust tape bands to avoid obscuring cable identification markings.
  - b. Colored cable ties applied in groups of 3 ties of specified color to each wire at each terminal or splice point starting 3 inches from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.
- K. Power Circuit Identification: Use metal tags or aluminum wraparound marker bands for cables, feeders, and power circuits in vaults, pull boxes, junction boxes, manholes, and switchboard rooms.
  1. Legend: 1/4-inch steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
  2. Fasten tags with nylon cable ties; fasten bands using integral ears.
- L. Apply identification to conductors as follows:
  1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
  2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color coding for voltage and phase indication of secondary circuit.
  3. Multiple Control and Communications Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color coding, or cable marking tape.
- M. Apply warning, caution, and instruction signs and stencils as follows:
  1. Install warning, caution, and instruction signs where indicated or required to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved, plastic-laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.
  2. Emergency-Operating Signs: Install engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.
- N. Install identification as follows:
  1. Apply equipment identification labels of engraved plastic laminate on each major unit of equipment, including central or master unit of each system. This includes communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Except as otherwise indicated, provide a single line of text with 1/2-inch high lettering on 1-1/2-inch high label; where 2 lines of text are required, use lettering 2 inches high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment.

Example: Panel 1H1 120/208V, 3-PH, 4-wire fed from panel MDR-CCT#4.

    - a. Panelboards, electrical cabinets, and enclosures.

- b. Access doors and panels for concealed electrical items.
  - c. Motor starters.
  - d. Power transfer equipment.
  - e. Contactors.
  - f. Remote-controlled switches.
  - g. Control devices.
  - h. Switches and receptacles.
  - i. Transformers.
  - j. Fire-alarm master station or control panel.
  - k. Security-monitoring master station or control panel.
2. Circuits: Apply identification labels of engraved plastic laminate on each switch and receptacle indicating panelboard and circuit number supplying receptacle.
3. Apply designation labels of engraved plastic laminate for disconnect switches, breakers, push buttons, pilot lights, motor control centers, and similar items for power distribution and control components above, except panelboards and alarm/signal components where labeling is specified elsewhere. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

END OF SECTION 260553



## SECTION 262416 - PANELBOARDS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes lighting and power panelboards and associated auxiliary equipment rated 600 V and less.
- B. Related Sections include the following:
  - 1. Division 26, Section 26 0500, Common Work Results for general materials and installation methods.
  - 2. Division 26, Section 26 0553, Identification for Electrical Systems for labeling materials.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product and component specified.

#### 1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: In addition to the requirements specified in Division 1 Section "Quality Control," a testing agency shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, or shall be a full member company of the InterNational Electrical Testing Association.
  - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or National Institute for Certification in Engineering Technologies, to supervise on-site testing specified in Part 3.
- B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
- C. Comply with NFPA 70.
- D. Comply with NEMA PB 1.
- E. Comply with UL 67.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Match existing panelboards for all new circuit breakers and modifications.

#### 2.2 OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker: NEMA AB 1, handle lockable.
  - 1. Characteristics: Frame size, trip rating, number of poles, and auxiliary devices as indicated and interrupting capacity rating to meet available fault current.
    - a. 10,000A RMS symmetrical minimum for 208Y/120V and 120/240V applications.
    - b. 14,000A RMS symmetrical minimum for 480V and 480Y/277V applications.
  - 2. Application Listing: Appropriate for application, including Type SWD for switching fluorescent lighting loads and Type HACR for heating, air-conditioning, and refrigerating equipment.
  - 3. Use common-trip type 2- and 3-pole breakers so that an overload or fault on one pole will trip all poles simultaneously; hand ties are not acceptable.
  - 4. Stab on breakers is not acceptable.
  - 5. Do not use tandem circuit breakers.
  - 6. Current-Limiting Trips: Where indicated, let-through ratings less than NEMA FU 1, Class RK-5.
  - 7. Current Limiters: Where indicated, integral fuse listed for circuit breaker.
  - 8. Lugs: Mechanical lugs and power-distribution connectors for number, size, and material of conductors indicated.

### 2.3 IDENTIFICATION

- A. Identify field-installed wiring and components and provide warning signs as specified in Division 26, Section 26 0553, Identification for Electrical Systems.
- B. Update existing circuit directory per NEC 408.4 and as follows:
  - 1. Neatly typed.
  - 2. Text no smaller than 1/8" high.
  - 3. Clear heat-resistant plastic cover.
  - 4. Metal frame on inside door of the equipment.
  - 5. No adhesive-mounted directory pockets.
  - 6. Must contain all information contained in the panel schedule except load calculations.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Labels for identifying the breakers shall be engraved laminated plastic strips attached by screws or Phenolic buttons or small window frame type. Adhesive stick-on labels will not be acceptable.
- B. Update circuit directory after field modifications and new circuiting.

### 3.2 CONNECTIONS

- A. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

### 3.3 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:

1. Make continuity tests of each new circuit.
- B. Testing: After modifications to existing panelboard is completed and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
  1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.6 for molded-case circuit breakers for each new circuit. Certify compliance with test parameters.
  2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.
- C. Balancing Loads: After Substantial Completion, but not more than 2 months after Final Acceptance, conduct load-balancing measurements and make circuit changes as follows:
  1. Perform measurements during period of normal working load as advised by Owner.
  2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility. Make special arrangements with Owner to avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
  3. Recheck loads after circuit changes during normal load period. Record all load readings before and after changes and submit test records.
  4. Tolerance: Difference exceeding 1 percent between average of the phase current, within a distribution panelboard, is not acceptable. Difference existing 10 percent between average of the phase current, within a branch-circuit panelboard, is not acceptable. Rebalance and recheck as required to meet this minimum requirement.

### 3.4 CLEANING

- A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.

END OF SECTION 262416

## SECTION 262726 - WIRING DEVICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes various types of receptacles, connectors, switches, and finish plates.

#### 1.3 SUBMITTALS

- A. Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each product specified, including all information required to show compliance with all requirements.
- C. Shop Drawings: Legends for receptacles and switch plates.
- D. Operation and maintenance data for materials and products specified in this Section to include in the "Operating and Maintenance Manual" specified in Division 1.

#### 1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70, National Electrical Code for devices and installation.
- B. Listing and Labeling: Provide products that are listed and labeled for their applications and installation conditions and for the environments in which installed.
  - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Wiring Devices:
    - a. Arrow Hart Div., Cooper Industries
    - b. Bryant Electric, Inc.
    - c. Eagle Electric Mfg. Co., Inc.
    - d. General Electric Co.
    - e. Hubbell Inc.
    - f. Leviton Mfg. Co., Inc.
    - g. Pass & Seymour/Legrand

2. Multi-Outlet Assemblies:
  - a. Airey-Thompson Co., Inc.
  - b. Dual-Lite
  - c. Isoduct Energy Systems
  - d. Kellems Div., Hubbell, Inc.
  - e. Wiremold Co.

## 2.2 WIRING DEVICES

- A. Comply with NEMA Standard WD 1, "General Purpose Wiring Devices."
- B. Enclosures: NEMA 1 equivalent, except as otherwise indicated.
- C. Color: Ivory except as otherwise indicated or required by Code.
- D. Receptacles, Straight-Blade and Locking Type: Except as otherwise indicated, comply with Federal Specification W-C-596 and heavy-duty grade of UL Standard 498, "Electrical Attachment Plugs and Receptacles." Provide NRTL labeling of devices to verify these compliances. 20A unless noted otherwise.
- E. Receptacles, Straight-Blade, Special Features: Comply with the basic requirements specified above for straight-blade receptacles of the class and type indicated, and with the following additional requirements:
  1. Ground-Fault Circuit Interrupter (GFCI) Receptacles: UL Standard 943, "Ground Fault Circuit Interrupters," non-feed-through type, with integral NEMA 5-20R duplex receptacle. Design units for installation in a 2-3/4-inch deep outlet box without an adapter.
- F. Snap Switches: Quiet-type a.c. switches, NRTL listed and labeled as complying with UL Standard 20 "General Use Snap Switches," and with Federal Specification W-S-896. Specification Grade 20A, 120-277V.
- G. Weatherproof Receptacles: Duplex receptacles, comply with basic requirements above. Cast metal box, cover plate, and cover to provide weatherproof capability with plugs and cords installed.
- H. Wall Plates: Single and combination types that mate and match with corresponding wiring devices. Features include the following:
  1. Color: Matches wiring device except as otherwise indicated.
  2. Plate-Securing Screws: Metal with heads colored to match plate finish.
  3. Material for Finished Spaces: Steel with wrinkled finish, white baked enamel, suitable for field painting, except as otherwise indicated.
  4. Material for Unfinished Spaces: Galvanized steel.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install devices and assemblies plumb and secure.
- B. Install wall plates when painting is complete.

- C. Arrangement of Devices: Except as otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
- D. Protect devices and assemblies during painting.
- E. Adjust locations at which floor service outlets and telephone/power service poles are installed to suit the indicated arrangement of partitions and furnishings.

### 3.2 IDENTIFICATION

- A. Comply with Division 26, Section 26 0553, Identification for Electrical Systems.
  - 1. Switches: Where 3 or more switches are ganged, and elsewhere where indicated, identify each switch with approved legend engraved on wall plate.
  - 2. Receptacles: Identify the panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

### 3.3 GROUNDING

- A. Equipment Ground: Connect to device and to box.

### 3.4 FIELD QUALITY CONTROL

- A. Testing: Test wiring devices for proper polarity and ground continuity. Operate each operable device at least 6 times.
- B. Test ground-fault circuit interrupter operation with both local and remote fault simulations according to manufacturer recommendations.
- C. Replace damaged or defective components.

### 3.5 CLEANING

- A. General: Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices. Replace wall plates or devices marked with pencil, pen, or other non-standard marking system. Thoroughly clean all device plates, remove fingerprints, smudges, and dirt.

END OF SECTION 262726

## SECTION 262816 - ENCLOSED SWITCHES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes individually mounted switches and circuit breakers used for the following:
  - 1. Feeder and equipment disconnect switches.
  - 2. Feeder branch-circuit protection.
  - 3. Motor disconnect switches.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 26, Section 26 27 26, Wiring Devices, for attachment plugs and receptacles, and snap switches used for disconnect switches.

#### 1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for disconnect switches, circuit breakers, and accessories specified in this Section.
- C. Wiring diagrams detailing wiring for power and control systems and differentiating between manufacturer-installed and field-installed wiring.
- D. Qualification data for firms and persons specified in the "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.
- E. Field test reports indicating and interpreting test results.
- F. Maintenance data for tripping devices to include in the operation and maintenance manual specified in Division 1.

#### 1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain disconnect switches and circuit breakers from one source and by a single manufacturer.
- B. Comply with NFPA 70 for components and installation.
- C. Listing and Labeling: Provide disconnect switches and circuit breakers specified in this Section that are listed and labeled.
  - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide disconnect switches and circuit breakers by one of the following:
  - a. Eaton Corp.; Cutler-Hammer Products
  - b. General Electric Co.; Electrical Distribution and Control Division
  - c. General Switch Corp.
  - d. Siemens Energy & Automation, Inc.
  - e. Square D Co.

### 2.2 DISCONNECT SWITCHES

- A. Enclosed, Nonfusible Switch: NEMA KS 1, Type HD with lockable handle.
- B. Enclosed, Fusible Switch, 800 A and Smaller: NEMA KS 1, Type HD, clips to accommodate specified fuses, enclosure consistent with environment where located, handle lockable with 2 padlocks, and interlocked with cover in CLOSED position.
- C. Enclosure: NEMA KS 1, Type 1, unless otherwise specified or required to meet environmental conditions of installed location.
  - 1. Outdoor Locations: Type 3R.
  - 2. Other Wet or Damp Indoor Locations: Type 4.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install disconnect switches and circuit breakers in locations as indicated, according to manufacturer's written instructions.
- B. Install disconnect switches and circuit breakers level and plumb.
- C. Connect disconnect switches and circuit breakers and components to wiring system and to ground as indicated and instructed by manufacturer.
  - 1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- D. Identify each disconnect switch and circuit breaker according to requirements specified in Division 26, Section 26 05 53, Identification for Electrical Systems.

### 3.2 FIELD QUALITY CONTROL

- A. Testing: After installing disconnect switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
  - 1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.5 for disconnect switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.



- B. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

3.3 ADJUSTING

- A. Set field-adjustable disconnect switches and circuit-breaker trip ranges as indicated.

3.4 CLEANING

- A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

END OF SECTION 262816