

# PROJECT MANUAL



UNIVERSITY OF SOUTH CAROLINA

## Close Building AHU Upgrades

State Project No. H27-6117

USC Project No. 50002911-2  
Architect/Engineer's Project No. 163290

April 15, 2016



4403 Broad River Road  
Columbia, South Carolina 29210  
(803) 731-9834 (F) (803) 731-9837

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# SE-310 INVITATION FOR CONSTRUCTION SERVICES

PROJECT NAME: Close Building AHU Replacement

PROJECT NUMBER: H27-6117 / 50002911-2

PROJECT LOCATION: University of South Carolina, Columbia, SC

BID SECURITY REQUIRED? Yes  No

PERFORMANCE BOND REQUIRED? Yes  No

PAYMENT BOND REQUIRED? Yes  No

NOTE: Contractor may be subject to a performance appraisal at the close of the project.

CONSTRUCTION COST RANGE: \$ 500,000-550,000

DESCRIPTION OF PROJECT: Provide labor and materials as detailed in the construction documents for the installation of new chilled water cooling coils and new access to the (2) penthouse airhandlers on the Close-Hipp building. Small and Minority participation is encouraged. It is the contractor's responsibility to obtain all bidding documents from the purchasing website.

BIDDING DOCUMENTS/PLANS MAY BE OBTAINED FROM: purchasing.sc.edu

PLAN DEPOSIT AMOUNT: \$ \$0.00 IS DEPOSIT REFUNDABLE Yes  No  N/A

Bidders must obtain Bidding Documents/Plans from the above listed source(s) to be listed as an official plan holder. Only those Bidding Documents/Plans obtained from the above listed source(s) are official. Bidders that rely on copies of Bidding Documents/Plans obtained from any other source do so at their own risk. All written communications with official plan holders & bidders **WILL**  **WILL NOT**  be via email or website posting.

IN ADDITION TO THE ABOVE OFFICIAL SOURCE(S), BIDDING DOCUMENTS/PLANS ARE ALSO AVAILABLE AT:

No Other Source (website only)

All questions & correspondence concerning this Invitation shall be addressed to the A/E.

A/E NAME: Mechanical Design Inc.

A/E CONTACT: Justin Varco, PE, CPD

A/E ADDRESS: Street/PO Box: 4403 Broad River Rd.

City: Columbia State: SC ZIP: 29210-

EMAIL: justin@mdi9834.com

TELEPHONE: (803) 731-9834 FAX: (803) 731-9837

AGENCY: University of South Carolina

AGENCY PROJECT COORDINATOR: Clarissa Clark, CPPO

ADDRESS: Street/PO Box: 743 Greene Street

City: Columbia State: SC ZIP: 29208-

EMAIL: clarkcg2@mailbox.sc.edu

TELEPHONE: (803) 777-7162 FAX: (803) 777-7334

PRE-BID CONFERENCE: Yes  No

MANDATORY ATTENDANCE: Yes  No

PRE-BID DATE: 4/28/2016 TIME: 11:00

PLACE: 743 Greene St., Conference Room

BID CLOSING DATE: 5/12/2016 TIME: 2:00

PLACE: 743 Greene St., Conference Room

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Clarissa Clark (Bid Enclosed)

University of South Carolina

743 Greene Street, Columbia, SC 29208

MAIL SERVICE:

Attn: Clarissa Clark (Bid Enclosed)

University of South Carolina

743 Greene Street, Columbia, SC 29208

IS PROJECT WITHIN AGENCY CONSTRUCTION CERTIFICATION? (Agency **MUST** check one) Yes  No

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(OSE Project Manager)

**AIA Document A701 (1997 Edition)**

**Instructions to Bidders**

Original AIA Document on file at the offices of  
Facilities, Planning and Construction  
743 Greene Street, Columbia, SC 29208

**OSE FORM 00201**  
**STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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**AGENCY:** University of South Carolina

**PROJECT NAME:** Close Building AHU Upgrades

**PROJECT NUMBER:** H27-6117 / 50002911-2

**PROJECT LOCATION:** University of South Carolina, Columbia, SC

**PROCUREMENT OFFICER:** Clarissa Clark

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**1. STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

- 1.1 These Standard Supplemental Instructions to Bidders amend or supplement Instructions to Bidders (AIA Document A701-1997) and other provisions of Bidding and Contract Documents as indicated below.
- 1.2 Compliance with these Standard Supplemental Instructions is required by the Office of State Engineer (OSE) for all State projects when competitive sealed bidding is used as the method of procurement.
- 1.3 All provisions of the A701-1997, which are not so amended or supplemented, remain in full force and effect.
- 1.4 Bidders are cautioned to carefully examine the Bidding and Contract Documents for additional instructions or requirements.

**2. MODIFICATIONS TO A701-1997**

**2.1** *Delete Section 1.1 and insert the following:*

**1.1** Bidding Documents, collectively referred to as the **Invitation for Bids**, include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement, Instructions to Bidders (A-701), Supplemental Instructions to Bidders, the Bid Form, the Notice of Intent to Award, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda issued prior to execution of the Contract, and other documents set forth in the Bidding Documents. Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101, 2007 Edition as modified by OSE Form 00501 – Standard Modification to Agreement between Owner and Contractor. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201, 2007 Edition as modified by OSE Form 00811 – Standard Supplementary Conditions.

**2.2** *In Section 1.8, delete the words “and who meets the requirements set forth in the Bidding Documents”.*

**2.3** *In Section 2.1, delete the word “making” and substitute the word “submitting.”*

**2.4** *In Section 2.1.1:*

*After the words “Bidding Documents,” delete the word “or” and substitute the word “and.” Insert the following at the end of this section:*

Bidders are expected to examine the Bidding Documents and Contract Documents thoroughly and should request an explanation of any ambiguities, discrepancies, errors, omissions, or conflicting statements. Failure to do so will be at the Bidder’s risk. Bidder assumes responsibility for any patent ambiguity that Bidder does not bring to the Owner’s attention prior to bid opening.

**2.5** *In Section 2.1.3, insert the following after the term “Contract Documents” and before the period:*

and accepts full responsibility for any pre-bid existing conditions that would affect the Bid that could have been ascertained by a site visit. As provided in Regulation 19-445.2042(B), a bidder’s failure to attend an advertised pre-bid conference will not excuse its responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the State.

**2.6** *Insert the following Sections 2.2 through 2.8:*

**2.2 CERTIFICATION OF INDEPENDENT PRICE DETERMINATION**

GIVING FALSE, MISLEADING, OR INCOMPLETE INFORMATION ON THIS CERTIFICATION MAY RENDER YOU SUBJECT TO PROSECUTION UNDER SECTION 16-9-10 OF THE SOUTH CAROLINA CODE OF LAWS AND OTHER APPLICABLE LAWS.

## OSE FORM 00201

### **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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- A. By submitting an bid, the bidder certifies that—
1. The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to—
    - a. Those prices;
    - b. The intention to submit an bid; or
    - c. The methods or factors used to calculate the prices offered.
  2. The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
  3. No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.
- B. Each signature on the bid is considered to be a certification by the signatory that the signatory—
1. Is the person in the bidder's organization responsible for determining the prices being offered in this bid, and that the signatory has not participated and will not participate in any action contrary to paragraphs A.1 through A.3 of this certification; or
  2.
    - a. Has been authorized, in writing, to act as agent for the bidder's principals in certifying that those principals have not participated, and will not participate in any action contrary to paragraphs A.1 through A.3 of this certification [As used in this subdivision B.2.a, the term "principals" means the person(s) in the bidder's organization responsible for determining the prices offered in this bid];
    - b. As an authorized agent, does certify that the principals referenced in subdivision B.2.a of this certification have not participated, and will not participate, in any action contrary to paragraphs A.1 through A.3 of this certification; and
    - c. As an agent, has not personally participated, and will not participate, in any action contrary to paragraphs A.1 through A.3 of this certification.
- C. If the bidder deletes or modifies paragraph (a)(2) of this certification, the bidder must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

#### **2.3 DRUG FREE WORKPLACE**

By submitting a bid, the Bidder certifies that Bidder will maintain a drug free workplace in accordance with the requirements of Title 44, Chapter 107 of South Carolina Code of Laws, as amended.

#### **2.4 CERTIFICATION REGARDING DEBARMENT AND OTHER RESPONSIBILITY MATTERS**

- A. 1. By submitting an Bid, Bidder certifies, to the best of its knowledge and belief, that-
- a. Bidder and/or any of its Principals-
    - (i) Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;
    - (ii) Have not, within a three-year period preceding this bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
    - (iii) Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph A.1.a.(ii) of this provision.
  - b. Bidder has not, within a three-year period preceding this bid, had one or more contracts terminated for default by any public (Federal, state, or local) entity.
2. "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).
- B. Bidder shall provide immediate written notice to the Procurement Officer if, at any time prior to contract award, Bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- C. If Bidder is unable to certify the representations stated in paragraphs A.1, Bidder must submit a written explanation regarding its inability to make the certification. The certification will be considered in connection with a review of the Bidder's responsibility. Failure of the Bidder to furnish additional information as requested by the Procurement Officer may render the Bidder nonresponsible.

## OSE FORM 00201

### STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph A. of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

- D. The certification in paragraph A. of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Bidder knowingly or in bad faith rendered an erroneous certification, in addition to other remedies available to the State, the Procurement Officer may terminate the contract resulting from this solicitation for default.

#### **2.5 ETHICS CERTIFICATE**

By submitting a bid, the bidder certifies that the bidder has and will comply with, and has not, and will not, induce a person to violate Title 8, Chapter 13 of the South Carolina Code of Laws, as amended (ethics act). The following statutes require special attention: Section 8-13-700, regarding use of official position for financial gain; Section 8-13-705, regarding gifts to influence action of public official; Section 8-13-720, regarding offering money for advice or assistance of public official; Sections 8-13-755 and 8-13-760, regarding restrictions on employment by former public official; Section 8-13-775, prohibiting public official with economic interests from acting on contracts; Section 8-13-790, regarding recovery of kickbacks; Section 8-13-1150, regarding statements to be filed by consultants; and Section 8-13-1342, regarding restrictions on contributions by contractor to candidate who participated in awarding of contract. The state may rescind any contract and recover all amounts expended as a result of any action taken in violation of this provision. If contractor participates, directly or indirectly, in the evaluation or award of public contracts, including without limitation, change orders or task orders regarding a public contract, contractor shall, if required by law to file such a statement, provide the statement required by Section 8-13-1150 to the procurement officer at the same time the law requires the statement to be filed.

#### **2.6 RESTRICTIONS APPLICABLE TO BIDDERS & GIFTS**

Violation of these restrictions may result in disqualification of your bid, suspension or debarment, and may constitute a violation of the state Ethics Act. (a) After issuance of the solicitation, ***bidder agrees not to discuss this procurement activity in any way with the Owner or its employees, agents or officials.*** All communications must be solely with the Procurement Officer. This restriction may be lifted by express written permission from the Procurement Officer. This restriction expires once a contract has been formed. (b) Unless otherwise approved in writing by the Procurement Officer, ***bidder agrees not to give anything to the Owner, any affiliated organizations, or the employees, agents or officials of either, prior to award.*** (c) Bidder acknowledges that the policy of the State is that a governmental body should not accept or solicit a gift, directly or indirectly, from a donor if the governmental body has reason to believe the donor has or is seeking to obtain contractual or other business or financial relationships with the governmental body. Regulation 19-445.2165(C) broadly defines the term donor.

#### **2.7 IRAN DIVESTMENT ACT CERTIFICATION**

(a) The Iran Divestment Act List is a list published by the State Fiscal Accountability Authority pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Currently, the list is available at the following URL: <http://procurement.sc.gov/PS/PS-iran-divestment.phtm>(.) Section 11-57-310 requires the government to provide a person ninety days written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the State to award a contract to you. (b) By signing your Offer, you certify that, as of the date you sign, you are not on the then-current version of the Iran Divestment Act List. (c) You must notify the Procurement Officer immediately if, at any time before posting of a final statement of award, you are added to the Iran Divestment Act List.

#### **2.8 OPEN TRADE REPRESENTATION (JUN 2015)**

By submitting an Offer, Offeror represents that Offeror is not currently engaged in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in SC Code Section 11-35-5300. [02-2A083-1]

#### **2.7** *Delete Section 3.1.1 and substitute the following:*

**3.1.1** Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement in the number and for the deposit sum, if any, stated therein. If so provided in the Advertisement, the deposit will be refunded to all plan holders who return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

#### **2.8** *Delete the language of Section 3.1.2 and insert the word "Reserved."*

#### **2.9** *In Section 3.1.4, delete the words "and Architect may make" and substitute the words "has made."*



## **OSE FORM 00201**

### **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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**2.10** *Insert the following Section 3.1.5*

**3.1.5** All persons obtaining Bidding Documents from the issuing office designated in the Advertisement shall provide that office with Bidder's contact information to include the Bidder's name, telephone number, mailing address, and email address.

**2.11** *In Section 3.2.2:*

*Delete the words "and Sub-bidders"*

*Delete the word "seven" and substitute the word "ten"*

**2.12** *In Section 3.2.3:*

*In the first Sentence, insert the word "written" before the word "Addendum." Insert the following at the end of the section:*

As provided in Regulation 19-445.2042(B), nothing stated at the pre-bid conference shall change the Bidding Documents unless a change is made by written Addendum.

**2.13** *Insert the following at the end of Section 3.3.1:*

Reference in the Bidding Documents to a designated material, product, thing, or service by specific brand or trade name followed by the words "or equal" and "or approved equal" shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition.

**2.14** *Delete Section 3.3.2 and substitute the following:*

**3.3.2** No request to substitute materials, products, or equipment for materials, products, or equipment described in the Bidding Documents and no request for addition of a manufacturer or supplier to a list of approved manufacturers or suppliers in the Bidding Documents will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids established in the Invitation for Bids. Any subsequent extension of the date for receipt of Bids by addendum shall not extend the date for receipt of such requests unless the addendum so specifies. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

**2.15** *Delete Section 3.4.3 and substitute the following:*

**3.4.3** Addenda will be issued no later than 120 hours prior to the time for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

**2.16** *Insert the following Sections 3.4.5 and 3.4.6:*

**3.4.5** When the date for receipt of Bids is to be postponed and there is insufficient time to issue a written Addendum prior to the original Bid Date, Owner will notify prospective Bidders by telephone or other appropriate means with immediate follow up with a written Addendum. This Addendum will verify the postponement of the original Bid Date and establish a new Bid Date. The new Bid Date will be no earlier than the fifth (5th) calendar day after the date of issuance of the Addendum postponing the original Bid Date.

**3.4.6** If an emergency or unanticipated event interrupts normal government processes so that bids cannot be received at the government office designated for receipt of bids by the exact time specified in the solicitation, the time specified for receipt of bids will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal government processes resume. In lieu of an automatic extension, an Addendum may be issued to reschedule bid opening. If state offices are closed at the time a pre-bid or pre-proposal conference is scheduled, an Addendum will be issued to reschedule the conference.

**2.17** *In Section 4.1.1, delete the word "forms" and substitute the words "SE-330 Bid Form."*

**2.18** *Delete Section 4.1.2 and substitute the following:*

**4.1.2** Any blanks on the bid form to be filled in by the Bidder shall be legibly executed in a non-erasable medium. Bids shall be signed in ink or other indelible media.

**2.19** *Delete Section 4.1.3 and substitute the following:*

**4.1.3** Sums shall be expressed in figures.

## **OSE FORM 00201**

### **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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**2.20** *Insert the following at the end of Section 4.1.4:*

Bidder shall not make stipulations or qualify his bid in any manner not permitted on the bid form. An incomplete Bid or information not requested that is written on or attached to the Bid Form that could be considered a qualification of the Bid, may be cause for rejection of the Bid.

**2.21** *Delete Section 4.1.5 and substitute the following:*

**4.1.5** All requested Alternates shall be bid. The failure of the bidder to indicate a price for an Alternate shall render the Bid non-responsive. Indicate the change to the Base Bid by entering the dollar amount and marking, as appropriate, the box for "ADD TO" or "DEDUCT FROM". If no change in the Base Bid is required, enter "ZERO" or "No Change." For add alternates to the base bid, Subcontractor(s) listed on page BF-2 of the Bid Form to perform Alternate Work shall be used for both Alternates and Base Bid Work if Alternates are accepted.

**2.22** *Delete Section 4.1.6 and substitute the following:*

**4.1.6** Pursuant to Title 11, Chapter 35, Section 3020(b)(i) of the South Carolina Code of Laws, as amended, Section 7 of the Bid Form sets forth a list of subcontractor specialties for which Bidder is required to identify only those subcontractors Bidder will use to perform the work of each listed specialty. Bidder must follow the Instructions in the Bid Form for filling out this section of the Bid Form. Failure to properly fill out Section 7 may result in rejection of Bidder's bid as non-responsive.

**2.23** *Delete Section 4.1.7 and substitute the following:*

**4.1.7** Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

**2.24** *Delete Section 4.2.1 and substitute the following:*

**4.2.1** If required by the Invitation for Bids, each Bid shall be accompanied by a bid security in an amount of not less than five percent of the Base Bid. The bid security shall be a bid bond or a certified cashier's check. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

**2.25** *Delete Section 4.2.2 and substitute the following:*

**4.2.2** If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney. The bid bond shall:

- .1** Be issued by a surety company licensed to do business in South Carolina;
- .2** Be issued by a surety company having, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty", which company shows a financial strength rating of at least five (5) times the contract price.
- .3** Be enclosed in the bid envelope at the time of Bid Opening, either in paper copy or as an electronic bid bond authorization number provided on the Bid Form and issued by a firm or organization authorized by the surety to receive, authenticate and issue binding electronic bid bonds on behalf the surety.

**2.26** *Delete Section 4.2.3 and substitute the following:*

**4.2.3** By submitting a bid bond via an electronic bid bond authorization number on the Bid Form and signing the Bid Form, the Bidder certifies that an electronic bid bond has been executed by a Surety meeting the standards required by the Bidding Documents and the Bidder and Surety are firmly bound unto the State of South Carolina under the conditions provided in this Section 4.2.

**2.27** *Insert the following Section 4.2.4:*

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

## **OSE FORM 00201**

### **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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**2.28** *Delete Section 4.3.1 and substitute the following:*

**4.3.1** All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall, unless hand delivered by the Bidder, be addressed to the Owner's designated purchasing office as shown in the Invitation for Bids. The envelope shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail or special delivery service (UPS, Federal Express, etc.), the envelope should be labeled "BID ENCLOSED" on the face thereof. Bidders hand delivering their Bids shall deliver Bids to the place of the Bid Opening as shown in the Invitation for Bids. Whether or not Bidders attend the Bid Opening, they shall give their Bids to the Owner's procurement officer or his/her designee as shown in the Invitation for Bids prior to the time of the Bid Opening.

**2.29** *Insert the following Section 4.3.5:*

**4.3.5** The official time for receipt of Bids will be determined by reference to the clock designated by the Owner's procurement officer or his/her designee. The procurement officer conducting the Bid Opening will determine and announce that the deadline has arrived and no further Bids or bid modifications will be accepted. All Bids and bid modifications in the possession of the procurement officer at the time the announcement is completed will be timely, whether or not the bid envelope has been date/time stamped or otherwise marked by the procurement officer.

**2.30** *Delete Section 4.4.2 and substitute the following:*

**4.4.2** Prior to the time and date designated for receipt of Bids, a Bid submitted may be withdrawn in person or by written notice to the party receiving Bids at the place designated for receipt of Bids. Withdrawal by written notice shall be in writing over the signature of the Bidder.

**2.31** *In Section 5.1, delete everything following the caption "OPENING OF BIDS" and substitute the following:*

**5.1.1** Bids received on time will be publicly opened and will be read aloud. Owner will not read aloud Bids that Owner determines, at the time of opening, to be non-responsive. .

**5.1.2** At bid opening, Owner will announce the date and location of the posting of the Notice of Intended Award.

**5.1.3** Owner will send a copy of the final Bid Tabulation to all Bidders within ten (10) working days of the Bid Opening.

**5.1.4** If Owner determines to award the Project, Owner will, after posting a Notice of Intended Award, send a copy of the Notice to all Bidders.

**5.1.5** If only one Bid is received, Owner will open and consider the Bid.

**2.32** *In Section 5.2, insert the section number "5.2.1" before the words of the "The Owner" at the beginning of the sentence.*

**2.33** *Insert the following Sections 5.2.2 and 5.2.3:*

**5.2.2** The reasons for which the Owner will reject Bids include, but are not limited to:

- .1** Failure by a Bidder to be represented at a Mandatory Pre-Bid Conference or site visit;
- .2** Failure to deliver the Bid on time;
- .3** Failure to comply with Bid Security requirements, except as expressly allowed by law;
- .4** Listing an invalid electronic Bid Bond authorization number on the bid form;
- .5** Failure to Bid an Alternate, except as expressly allowed by law;
- .6** Failure to list qualified Subcontractors as required by law;
- .7** Showing any material modification(s) or exception(s) qualifying the Bid;
- .8** Faxing a Bid directly to the Owner or their representative; or
- .9** Failure to include a properly executed Power-of-Attorney with the bid bond.

**5.2.3** The Owner may reject a Bid as nonresponsive if the prices bid are materially unbalanced between line items or sub-line items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Owner even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

## **OSE FORM 00201**

### **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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**2.34** *Delete Section 6.1 and substitute the following:*

#### **6.1 CONTRACTOR'S RESPONSIBILITY**

Owner will make a determination of Bidder's responsibility before awarding a contract. Bidder shall provide all information and documentation requested by the Owner to support the Owner's evaluation of responsibility. Failure of Bidder to provide requested information is cause for the Owner, at its option, to determine the Bidder to be non-responsible

**2.35** *Delete the language of Section 6.2 and insert the word "Reserved."*

**2.36** *Delete the language of Sections 6.3.2, 6.3.3, and 6.3.4 and insert the word "Reserved" after each Section Number.*

**2.37** *Insert the following Section 6.4*

#### **6.4 CLARIFICATION**

Pursuant to Section 11-35-1520(8), the Procurement Officer may elect to communicate with a Bidder after opening for the purpose of clarifying either the Bid or the requirements of the Invitation for Bids. Such communications may be conducted only with Bidders who have submitted a Bid which obviously conforms in all material aspects to the Invitation for Bids and only in accordance with Appendix E (Paragraph A(6)) to the Manual for Planning and Execution of State Permanent Improvement, Part II. Clarification of a Bid must be documented in writing and included with the Bid. Clarifications may not be used to revise a Bid or the Invitation for Bids. [Section 11-35-1520(8); R.19-445.2080]

**2.38** *Delete Section 7.1.2 and substitute the following:*

**7.1.2** The performance and payment bonds shall conform to the requirements of Section 11.4 of the General Conditions of the Contract. If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid.

**2.39** *Delete the language of Section 7.1.3 and insert the word "Reserved."*

**2.40** *In Section 7.2, insert the words "CONTRACT, CERTIFICATES OF INSURANCE" into the caption after the word "Delivery."*

**2.41** *Delete Section 7.2.1 and substitute the following:*

**7.2.1** After expiration of the protest period, the Owner will tender a signed Contract for Construction to the Bidder and the Bidder shall return the fully executed Contract for Construction to the Owner within seven days thereafter. The Bidder shall deliver the required bonds and certificate of insurance to the Owner not later than three days following the date of execution of the Contract. Failure to deliver these documents as required shall entitle the Owner to consider the Bidder's failure as a refusal to enter into a contract in accordance with the terms and conditions of the Bidder's Bid and to make claim on the Bid Security for re-procurement cost.

**2.42** *Delete the language of Section 7.2.2 and insert the word "Reserved."*

**2.43** *Delete the language of Article 8 and insert the following:*

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on South Carolina Modified AIA Document A101, 2007, Standard Form of Agreement Between Owner and Contractor as modified by OSE Form 00501 – Standard Modification to Agreement Between Owner and Contractor.

**2.44** *Insert the following Article 9:*

#### **ARTICLE 9 MISCELLANEOUS**

##### **9.1 NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING IMPORTANT TAX NOTICE - NONRESIDENTS ONLY**

Withholding Requirements for Payments to Nonresidents: Section 12-8-550 of the South Carolina Code of Laws requires persons hiring or contracting with a nonresident conducting a business or performing personal services of a temporary nature within South Carolina to withhold 2% of each payment made to the nonresident. The withholding requirement does not apply to (1) payments on purchase orders for tangible personal property when the payments are not accompanied by services to be performed in South Carolina, (2) nonresidents who are not conducting business in South Carolina, (3) nonresidents for contracts that do not exceed \$10,000 in a calendar year, or (4) payments to a nonresident who (a) registers with either the S.C. Department of Revenue or the S.C. Secretary of State and (b) submits a Nonresident Taxpayer Registration Affidavit - Income Tax Withholding, Form I-312 to the person letting the contract.

## OSE FORM 00201

### STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

For information about other withholding requirements (e.g., employee withholding), contact the Withholding Section at the South Carolina Department of Revenue at 803-898-5383 or visit the Department's website at: [www.sctax.org](http://www.sctax.org)

This notice is for informational purposes only. This Owner does not administer and has no authority over tax issues. All registration questions should be directed to the License and Registration Section at 803-898-5872 or to the South Carolina Department of Revenue, Registration Unit, Columbia, S.C. 29214-0140. All withholding questions should be directed to the Withholding Section at 803-898- 5383.

PLEASE SEE THE "NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING" FORM (Available through SC Department of Revenue).

#### **9.2 CONTRACTOR LICENSING**

Contractors and Subcontractors listed in Section 7 of the Bid Form who are required by the South Carolina Code of Laws to be licensed, must be licensed at the time of bidding.

#### **9.3 SUBMITTING CONFIDENTIAL INFORMATION**

For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that Bidder contends contains information that is exempt from public disclosure because it is either (a) a trade secret as defined in Section 30-4-40(a)(1), or (b) privileged & confidential, as that phrase is used in Section 11-35-410. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the words "TRADE SECRET" every page, or portion thereof, that Bidder contends contains a trade secret as that term is defined by Section 39-8-20 of the Trade Secrets Act. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "PROTECTED" every page, or portion thereof, that Bidder contends is protected by Section 11-35-1810. All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark your entire bid as confidential, trade secret, or protected! If your bid, or any part thereof, is improperly marked as confidential or trade secret or protected, the State may, in its sole discretion, determine it nonresponsive. If only portions of a page are subject to some protection, do not mark the entire page. By submitting a response to this solicitation, Bidder (1) agrees to the public disclosure of every page of every document regarding this solicitation or request that was submitted at any time prior to entering into a contract (including, but not limited to, documents contained in a response, documents submitted to clarify a response, & documents submitted during negotiations), unless the page is conspicuously marked "TRADE SECRET" or "CONFIDENTIAL" or "PROTECTED", (2) agrees that any information not marked, as required by these bidding instructions, as a "Trade Secret" is not a trade secret as defined by the Trade Secrets Act, & (3) agrees that, notwithstanding any claims or markings otherwise, any prices, commissions, discounts, or other financial figures used to determine the award, as well as the final contract amount, are subject to public disclosure. In determining whether to release documents, the State will detrimentally rely on Bidders's marking of documents, as required by these bidding instructions, as being either "Confidential" or "Trade Secret" or "PROTECTED". By submitting a response, Bidder agrees to defend, indemnify & hold harmless the State of South Carolina, its officers & employees, from every claim, demand, loss, expense, cost, damage or injury, including attorney's fees, arising out of or resulting from the State withholding information that Bidder marked as "confidential" or "trade secret" or "PROTECTED".

#### **9.4 POSTING OF INTENT TO AWARD**

The SE-370, Notice of Intent to Award, will be posted at the following location:

**Room or Area of Posting:** Lobby

**Building Where Posted:** USC Facilities Maintenance Building

**Address of Building:** 743 Greene St. Columbia SC 29208

**WEB site address (if applicable):** <http://purchasing.sc.edu>

**Posting date will be announced at bid opening.** In addition to posting the notice, the Owner will promptly send all responsive bidders a copy of the notice of intent to award and the final bid tabulation

#### **9.5 PROTEST OF SOLICITATION OR AWARD**

Any prospective bidder, offeror, contractor, or subcontractor who is aggrieved in connection with the solicitation of a contract shall protest within fifteen days of the date of issuance of the applicable solicitation document at issue. Any actual bidder, offeror, contractor, or subcontractor who is aggrieved in connection with the intended award or award of a contract shall protest within ten days of the date notification of intent to award is posted in accordance with Title 11, Chapter 35, Section 4210 of the South Carolina Code of Laws, as amended. A protest shall be in writing, shall set forth the grounds of the protest and the relief requested with enough particularity to give notice of the issues to be decided, and must be received by the State Engineer within the time provided.

# OSE FORM 00201

## **STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

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Any protest must be addressed to the CPO, Office of State Engineer, and submitted in writing:

- A. by email to [protest-ose@mso.sc.gov](mailto:protest-ose@mso.sc.gov),
- B. by facsimile at 803-737-0639, or
- C. by post or delivery to 1201 Main Street, Suite 600, Columbia, SC 29201.

By submitting a protest to the foregoing email address, you (and any person acting on your behalf) consent to receive communications regarding your protest (and any related protests) at the e-mail address from which you sent your protest.

### **9.6 SOLICITATION INFORMATION FROM SOURCES OTHER THAN OFFICIAL SOURCE**

South Carolina Business Opportunities (SCBO) is the official state government publication for State of South Carolina solicitations. Any information on State agency solicitations obtained from any other source is unofficial and any reliance placed on such information is at the bidder's sole risk and is without recourse under the South Carolina Consolidated Procurement Code.

### **9.7 BUILDER'S RISK INSURANCE**

Bidders are directed to Article 11.3 of the South Carolina Modified AIA Document A201, 2007 Edition, which, unless provided otherwise in the bid documents, requires the contractor to provide builder's risk insurance on the project.

### **9.8 TAX CREDIT FOR SUBCONTRACTING WITH MINORITY FIRMS**

Pursuant to Section 12-6-3350, taxpayers, who utilize certified minority subcontractors, may take a tax credit equal to 4% of the payments they make to said subcontractors. The payments claimed must be based on work performed directly for a South Carolina state contract. The credit is limited to a maximum of fifty thousand dollars annually. The taxpayer is eligible to claim the credit for 10 consecutive taxable years beginning with the taxable year in which the first payment is made to the subcontractor that qualifies for the credit. After the above ten consecutive taxable years, the taxpayer is no longer eligible for the credit. The credit may be claimed on Form TC-2, "Minority Business Credit." A copy of the subcontractor's certificate from the Governor's Office of Small and Minority Business (OSMBA) is to be attached to the contractor's income tax return. Taxpayers must maintain evidence of work performed for a State contract by the minority subcontractor. Questions regarding the tax credit and how to file are to be referred to: SC Department of Revenue, Research and Review, Phone: (803) 898-5786, Fax: (803) 898-5888. The subcontractor must be certified as to the criteria of a "Minority Firm" by the Governor's Office of Small and Minority Business Assistance (OSMBA). Certificates are issued to subcontractors upon successful completion of the certification process. Questions regarding subcontractor certification are to be referred to: Governor's Office of Small and Minority Business Assistance, Phone: (803) 734-0657, Fax: (803) 734-2498. Reference: SC §11-35-5010 – Definition for Minority Subcontractor & SC §11-35-5230 (B) – Regulations for Negotiating with State Minority Firms.

### **9.9 OTHER SPECIAL CONDITIONS OF THE WORK**

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**END OF DOCUMENT**



**AIA**<sup>®</sup>

# Document A310™ – 2010

## ***Bid Bond***

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

**BOND AMOUNT: \$**

**PROJECT:**

*(Name, location or address, and Project number, if any)*

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

**ADDITIONS AND DELETIONS:**

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

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Init.



furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this      day of      ,

_____	_____
<i>(Witness)</i>	<i>(Contractor as Principal)</i> <i>(Seal)</i>
_____	_____
	<i>(Title)</i>
_____	_____
	<i>(Surety)</i> <i>(Seal)</i>
_____	_____
<i>(Witness)</i>	<i>(Title)</i>

Init.

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**SE-330**  
**LUMP SUM BID FORM**

*Bidders shall submit bids on only Bid Form SE-330.*

**BID SUBMITTED BY:** \_\_\_\_\_  
(Bidder's Name)

**BID SUBMITTED TO:** Univeristy of South Carolina  
(Owner's Name)

**FOR: PROJECT NAME:** Close Building AHU Upgrades

**PROJECT NUMBER:** H27-6114 / 500029211-2

**OFFER**

§ 1. In response to the Invitation for Construction Services and in compliance with the Instructions to Bidders for the above-named Project, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with the Owner on the terms included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

§ 2. Pursuant to Section 11-35-3030(1) of the SC Code of Laws, as amended, Bidder has submitted Bid Security as follows in the amount and form required by the Bidding Documents:

**Bid Bond with Power of Attorney**       **Electronic Bid Bond**       **Cashier's Check**

(Bidder check one)

§ 3. Bidder acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into this Bid:

(Bidder, check all that apply. Note, there may be more boxes than actual addenda. Do not check boxes that do not apply)

**ADDENDA:**       #1       #2       #3       #4       #5

§ 4. Bidder accepts all terms and conditions of the Invitation for Bids, including, without limitation, those dealing with the disposition of Bid Security. Bidder agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of **60** Days following the Bid Date, or for such longer period of time that Bidder may agree to in writing upon request of the Owner.

§ 5. Bidder herewith offers to provide all labor, materials, equipment, tools of trades and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the following items of construction work:

§ 6.1 **BASE BID WORK** (as indicated in the Bidding Documents and generally described as follows): \_\_\_\_\_

\$ \_\_\_\_\_, which sum is hereafter called the Base Bid.

(Bidder - insert Base Bid Amount on line above)

# SE-330 LUMP SUM BID FORM

§ 6.2 **BID ALTERNATES** as indicated in the Bidding Documents and generally described as follows:

**ALTERNATE # 1** (Brief Description): \_\_\_\_\_

**ADD TO** or  **DEDUCT FROM BASE BID: \$** \_\_\_\_\_

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

**ALTERNATE # 2** (Brief Description): \_\_\_\_\_

**ADD TO** or  **DEDUCT FROM BASE BID: \$** \_\_\_\_\_

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

**ALTERNATE # 3** (Brief Description): \_\_\_\_\_

**ADD TO** or  **DEDUCT FROM BASE BID: \$** \_\_\_\_\_

(Bidder to Mark appropriate box to clearly indicate the price adjustment offered for each Alternate)

## § 6.3 UNIT PRICES:

**BIDDER** offers for the Agency's consideration and use, the following **UNIT PRICES**. The **UNIT PRICES** offered by **BIDDER** indicate the amount to be added to or deducted from the **CONTRACT SUM** for each item-unit combination. **UNIT PRICES** include all costs to the Agency, including those for materials, labor, equipment, tools of trades and labor, fees, taxes, insurance, bonding, overhead, profit, etc. The Agency reserves the right to include or not to include any of the following **UNIT PRICES** in the Contract and to negotiate the **UNIT PRICES** with **BIDDER**.

<b>No.</b>	<b>ITEM</b>	<b>UNIT OF MEASURE</b>	<b>ADD</b>	<b>DEDUCT</b>
<u>1.</u>	_____	_____	\$ _____	\$ _____
<u>2.</u>	_____	_____	\$ _____	\$ _____
<u>3.</u>	_____	_____	\$ _____	\$ _____
<u>4.</u>	_____	_____	\$ _____	\$ _____
<u>5.</u>	_____	_____	\$ _____	\$ _____
<u>6.</u>	_____	_____	\$ _____	\$ _____
<u>7.</u>	_____	_____	\$ _____	\$ _____
<u>8.</u>	_____	_____	\$ _____	\$ _____

**SE-330**  
**LUMP SUM BID FORM**

**§ 7. LISTING OF PROPOSED SUBCONTRACTORS PURSUANT TO SECTION 3020(b)(i), CHAPTER 35, TITLE 11 OF THE SOUTH CAROLINA CODE OF LAWS, AS AMENDED**  
*(See Instructions on the following page BF-2A)*

Bidder shall use the below-listed Subcontractors in the performance of the Subcontractor Classification work listed:

<b>SUBCONTRACTOR CLASSIFICATION</b> <b>By License Classification and/or Subclassification</b> <i>(Completed by Owner)</i>	<b>SUBCONTRACTOR'S PRIME CONTRACTOR'S NAME</b> <i>(Must be completed by Bidder)</i>	<b>SUBCONTRACTOR'S PRIME CONTRACTOR'S SC LICENSE NUMBER</b> <i>(Requested, but not Required)</i>
<b>BASE BID</b>		
<b>ALTERNATE #1</b>		
<b>ALTERNATE #2</b>		
<b>ALTERNATE #3</b>		

If a Bid Alternate is accepted, Subcontractors listed for the Bid Alternate shall be used for the work of both the Alternate and the Base Bid work.

**SE-330**  
**LUMP SUM BID FORM**

**INSTRUCTIONS FOR  
SUBCONTRACTOR LISTING**

1. Section 7 of the Bid Form sets forth an Owner developed list of contractor/subcontractor specialties by contractor license category and/or subcategory for which bidder is required to identify the entity (subcontractor(s) and/or himself) Bidder will use to perform the work of each listed specialty..
  - a. **Column A:** The Owner fills out this column, which identifies the contractor/subcontractor specialties for which the bidder must list either a subcontractor or himself as the entity that will perform this work. Subcontractor specialties are identified by contractor license categories or subcategories listed in Title 40 of the South Carolina Code of laws. If the owner has not identified a specialty, the bidder does not list a subcontractor.
  - b. **Columns B and C:** In these columns, the Bidder identifies the subcontractors it will use for the work of each specialty listed by the Owner in Column A. Bidder must identify only the subcontractor(s) who will perform the work and no others. Bidders should make sure that their identification of each subcontractor is clear and unambiguous. A listing that could be any number of different entities may be cause for rejection of the bid as non-responsive. For example, a listing of M&M without more may be problematic if there are multiple different licensed contractors in South Carolina whose names start with M&M.
2. **Subcontractor Defined:** For purposes of subcontractor listing, a subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site pursuant to a contract with the prime contractor. Bidder should not identify sub-subcontractors in the spaces provided on the bid form but only those entities with which bidder will contract directly. Likewise, do not identify material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the bidder or proposed subcontractor(s).
3. **Subcontractor Qualifications:** Bidder must only list subcontractors who possess a South Carolina Contractor's license with the license classification and/or subclassification identified by the Owner in the first column on the left. The subcontractor license must also be within the appropriate license group for the work of the specialty. If Bidder lists a subcontractor who is not qualified to perform the work, the Bidder will be rejected as non-responsive.
4. **Use of Own forces:** If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a listed specialty and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert its own name in the space provided for that specialty.
5. **Use of Multiple Subcontractors:**
  - a. If Bidder intends to use multiple subcontractors to perform the work of a single specialty listing, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word "**and**". If Bidder intends to use both his own employees to perform a part of the work of a single specialty listing and to use one or more subcontractors to perform the remaining work for that specialty listing, bidder must insert his own name and the name of each subcontractor, preferably separating the name of each with the word "**and**". Bidder must use each entity listed for the work of a single specialty listing in the performance of that work.
  - b. **Optional Listing Prohibited:** Bidder may not list multiple subcontractors for a specialty listing, in a form that provides the Bidder the option, after bid opening or award, to choose to use one or more but not all the listed subcontractors to perform the work for which they are listed. A listing, which on its face requires subsequent explanation to determine whether it is an optional listing, is non-responsive. If bidder intends to use multiple entities to perform the work for a single specialty listing, bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word "**and**" between the names of each entity listed for that specialty. Agency will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word "or", a virgule (that is a /), or any separator that the Agency may reasonably interpret as an optional listing.
6. If Bidder is awarded the contract, bidder must, except with the approval of the Agency for good cause shown, use the listed entities to perform the work for which they are listed.
7. If bidder is awarded the contract, bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in Section 7 of the Bid except for one or more of the reasons allowed by the SC Code of Laws.
8. Bidder's failure to identify an entity (subcontractor or himself) to perform the work of a subcontractor specialty listed in the first column on the left will render the Bid non-responsive.

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**LUMP SUM BID FORM**

**§ 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE (FOR INFORMATION ONLY):**

Pursuant to instructions in the Invitation for Construction Services, if any, Bidder will provide to Owner upon the Owner's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code Ann § 11-35-3020(b)(i).

**§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES**

**a) CONTRACT TIME**

Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Owner. Bidder agrees to substantially complete the Work within 60 Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

**b) LIQUIDATED DAMAGES**

Bidder further agrees that from the compensation to be paid, the Owner shall retain as Liquidated Damages the amount of \$ 250.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

**§ 10. AGREEMENTS**

- a) Bidder agrees that this bid is subject to the requirements of the laws of the State of South Carolina.
- b) Bidder agrees that at any time prior to the issuance of the Notice to Proceed for this Project, this Project may be canceled for the convenience of, and without cost to, the State.
- c) Bidder agrees that neither the State of South Carolina nor any of its agencies, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or the Project canceled for any reason prior to the issuance of the Notice to Proceed.

**§ 11. ELECTRONIC BID BOND**

By signing below, the Principal is affirming that the identified electronic bid bond has been executed and that the Principal and Surety are firmly bound unto the State of South Carolina under the terms and conditions of the AIA Document A310, Bid Bond, included in the Bidding Documents.

**ELECTRONIC BID BOND NUMBER:** \_\_\_\_\_

**SIGNATURE AND TITLE:** \_\_\_\_\_

**SE-330  
LUMP SUM BID FORM**

**CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATION**

**SC Contractor's License Number(s):** \_\_\_\_\_

**Classification(s) & Limits:** \_\_\_\_\_

**Subclassification(s) & Limits:** \_\_\_\_\_

**By signing this Bid, the person signing reaffirms all representation and certification made by both the person signing and the Bidder, including without limitation, those appearing in Article 2 of the Instructions to Bidders, is expressly incorporated by reference.**

**BIDDER'S LEGAL NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**EMAIL:** \_\_\_\_\_

**SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**PRINT NAME:** \_\_\_\_\_

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

**AIA Document A101 (2007 Edition)**  
**Standard Form of Agreement Between**  
**Owner and Contractor**

Original AIA Document on file at the offices of  
Facilities, Planning and Construction  
743 Greene Street, Columbia, SC 29208

# OSE FORM 00501 STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

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AGENCY: University of South Carolina

PROJECT NAME: Close Building AHU Upgrades

PROJECT NUMBER: H27-6117 / 50002911-2

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## 1. STANDARD MODIFICATIONS TO AIA A101-2007

- 1.1 These Standard Modifications amend or supplement the *Standard Form of Agreement Between Owner and Contractor* (AIA Document A101-2007) and other provisions of Bidding and Contract Documents as indicated below.
- 1.2 All provisions of A101-2007, which are not so amended or supplemented, remain in full force and effect.

## 2. MODIFICATIONS TO A101

2.1 *Insert the following at the end of Article 1:*

Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101, 2007 Edition as modified by OSE Form 00501 – Standard Modification to Agreement Between Owner and Contractor. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201, 2007 Edition as modified by OSE Form 00811 – Standard Supplementary Conditions.

2.2 *Delete Section 3.1 and substitute the following:*

3.1 The Date of Commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner. The Owner shall issue the Notice to Proceed to the Contractor in writing, no less than seven days prior to the Date of Commencement. Unless otherwise provided elsewhere in the contract documents, and provided the contractor has secured all required insurance and surety bonds, the contractor may commence work immediately after receipt of the Notice to Proceed.

2.3 *Delete Section 3.2 and substitute the following:*

3.2 The Contract Time as provided in Section 9(a) of the Bid Form for this Project shall be measured from the Date of Commencement. Contractor agrees that if the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Owner shall be entitled to withhold or recover from the Contractor Liquidated Damages in the amounts set forth in Section 9(b) of the Bid Form, subject to adjustments of this Contract Time as provided in the Contract Documents.

2.4 *In Section 5.1.1, insert the words “and Owner” after the phrase “Payment submitted to the Architect.”*

2.5 *Delete Section 5.1.3 and substitute the following:*

5.1.3 The Owner shall make payment of the certified amount to the Contractor not later than 21 days after receipt of the Application for Payment.

2.6 *In Section 5.1.6, insert the following after the phrase “Subject to other provisions of the Contract Documents”:* and subject to Title 12, Chapter 8, Section 550 of the South Carolina Code of Laws, as amended (Withholding Requirements for Payments to Non-Residents).

*In the spaces provided in Sub-Sections 1 and 2 for inserting the retainage amount, insert “three and one-half percent (3.5%).”*

2.7 *In Section 5.1.8, delete the word “follows” and the colon and substitute the following:* set forth in S.C. Code Ann. § 11-35-3030(4).

2.8 *In Section 5.1.9, delete the words “Except with the Owner’s prior approval, the” before the word “ Contractor.”*

2.9 *In Section 5.2.2, delete the number 30 and substitute the number 21, delete everything following the words “Certificate for Payment” and place a period at the end of the resulting sentence.*

2.10 *Delete the language of Sections 6.1 and 6.2 and substitute the word “Reserved” for the deleted language of each Section.*

2.11 *Delete the language of Section 8.2 and substitute the word “Reserved.”*



# OSE FORM 00501

## STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

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**2.12** *In Section 8.3, make the word "Representative" in the title plural, delete everything following the title, and substitute the following:*

**8.3.1** Owner designates the individual listed below as its Senior Representative ("Owner's Senior Representative"), which individual has the responsibility for and, subject to Section 7.2.1 of the General Conditions, the authority to resolve disputes under Section 15.6 of the General Conditions:

**Name:** Tom Opal, PE

**Title:** Senior Project Manager

**Address:** 743 Greene Street, Columbia, SC 29208

**Telephone:** (803) 777-7076      **FAX:** (803) 777-0484

**Email:** tnopal@fmc.sc.edu

**8.3.2** Owner designates the individual listed below as its Owner's Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions:

**Name:** Geen Cheng Khoo, PE

**Title:** Project Manager

**Address:** 743 Greene Street, Columbia, SC 29208

**Telephone:** (803)777-5818      **FAX:** (803)777-1125

**Email:** khoo@mailbox.sc.edu

**2.13** *In Section 8.4, make the word "Representative" in the title plural, delete everything following the title, and substitute the following:*

**8.4.1** Contractor designates the individual listed below as its Senior Representative ("Contractor's Senior Representative"), which individual has the responsibility for and authority to resolve disputes under Section 15.6 of the General Conditions:

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

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

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

**Telephone:** \_\_\_\_\_      **FAX:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**8.4.2** Contractor designates the individual listed below as its Contractor's Representative, which individual has the authority and responsibility set forth in Section 3.1.1 of the General Conditions:

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

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

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

**Telephone:** \_\_\_\_\_      **FAX:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**2.14** *Add the following Section 8.6.1:*

**8.6.1** The Architect's representative:

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

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

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

**Telephone:** \_\_\_\_\_      **FAX:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**OSE FORM 00501**  
**STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND**  
**CONTRACTOR**

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**2.15** *In Section 9.1.7, Sub-Section 2, list the following documents in the space provided for listing documents:*

**SE-310, Invitation for Construction Services**

**Instructions to Bidders (AIA Document A701-1997)**

**OSE Form 00201, Standard Supplemental Instructions to Bidders**

**Contractor's Bid (Completed Bid Form)**

**SE-370, Notice of Intent to Award**

**2.16** *In Article 10, delete everything after the first sentence.*

**END OF DOCUMENT**

**AIA Document A201 (2007 Edition)**

**General Conditions of the  
Contract for Construction**

Original AIA Document on file at the offices of  
Facilities, Planning and Construction  
743 Greene Street, Columbia, SC 29208

# OSE FORM 00811

## STANDARD SUPPLEMENTARY CONDITIONS

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AGENCY: University of South Carolina

PROJECT NAME: Close Building AHU Upgrades

PROJECT NUMBER: H27-6117 / 50002911-2

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### 1. GENERAL CONDITIONS

The *General Conditions of the Contract for Construction*, AIA Document A201, 2007 Edition, Articles 1 through 15 inclusive, is a part of this Contract and is incorporated as fully as if herein set forth. For brevity, AIA Document A201 is also referred to in the Contract Documents collectively as the "General Conditions."

### 2. STANDARD SUPPLEMENTARY CONDITIONS

2.1 The following supplements modify, delete and/or add to the General Conditions. Where any portion of the General Conditions is modified or any paragraph, Section or clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of the General Conditions shall remain in effect.

2.2 Unless otherwise stated, the terms used in these Standard Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

### 3. MODIFICATIONS TO A201-2007

3.1 *Insert the following at the end of Section 1.1.1:*

Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101, 2007 Edition as modified by OSE Form 00501 – Standard Modification to Agreement between Owner and Contractor. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201, 2007 Edition as modified by OSE Form 00811 – Standard Supplementary Conditions.

3.2 *Delete the language of Section 1.1.8 and substitute the word "Reserved."*

3.3 *Add the following Section 1.1.9:*

#### 1.1.9 NOTICE TO PROCEED

Notice to Proceed is a document issued by the Owner to the Contractor, with a copy to the Architect, directing the Contractor to begin prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed shall fix the date on which the Contract Time will commence.

3.4 *Insert the following at the end of Section 1.2.1:*

In the event of patent ambiguities within or between parts of the Contract Documents, the contractor shall 1) provide the better quality or greater quantity of Work, or 2) comply with the more stringent requirement, either or both in accordance with the Architect's interpretation.

3.5 *Delete Section 1.5.1 and substitute the following:*

1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment 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 this Project is not to be construed as a violation of the Architect's or Architect's consultants' reserved rights.

3.6 *Delete Section 2.1.1 and substitute the following:*

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 provided in Section 7.1.2. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's Representative. [Reference § 8.2 of the Agreement.]

3.7 *Delete Section 2.1.2 and substitute the following:*

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 post Notice of Project Commencement pursuant to Title 29, Chapter 5, Section 23 of the South Carolina Code of Laws, as amended.

## **OSE FORM 00811**

### **STANDARD SUPPLEMENTARY CONDITIONS**

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**3.8** *Delete Section 2.2.3 and substitute the following:*

**2.2.3** 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. Subject to the Contractor's obligations, including those in Section 3.2, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner pursuant to this Section but shall exercise proper precautions relating to the safe performance of the Work.

**3.9** *Replace the period at the end of the last sentence of Section 2.2.4 with a semicolon and insert the following after the inserted semicolon:*

"however, the Owner does not warrant the accuracy of any such information requested by the Contractor that is not otherwise required of the Owner by the Contract Documents. Neither the Owner nor the Architect shall be required to conduct investigations or to furnish the Contractor with any information concerning subsurface characteristics or other conditions of the area where the Work is to be performed beyond that which is provide in the Contract Documents."

**3.10** *Delete Section 2.2.5 and substitute the following:*

**2.2.5** Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor with two hard copies and one electronic copy (.pdf format) of the Contract Documents. The Contractor may make reproductions of the Contract Documents pursuant to Section 1.5.2.

**3.11** *Add the following Sections 2.2.6 and 2.2.7:*

**2.2.6** The Owner assumes no responsibility for any conclusions or interpretation made by the Contractor based on information made available by the Owner.

**2.2.7** The Owner shall obtain, at its own cost, general building and specialty inspection services as required by the Contract Documents. The Contractor shall be responsible for payment of any charges imposed for reinspections.

**3.12** *Delete Section 2.4 and substitute the following:*

**2.4** 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 written notice from the Owner to commence and continue correction of such default or neglect, including but not limited to providing necessary resources, with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Directive shall be issued deducting from payments then or thereafter due the Contractor 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 payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

**3.13** *Insert the following at the end of Section 3.2.1:*

The Contractor acknowledges that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Owner.

**3.14** *In the third sentence of Section 3.2.4, insert the word "latent" before the word "errors."*

**3.15** *In the last sentence of Section 3.3.1, insert the words "by the Owner in writing" after the word "instructed."*

**3.16** *Delete the third sentence of Section 3.5 and substitute the following sentences:*

Work, materials, or equipment not conforming to these requirements shall be considered defective. Unless caused by the Contractor or a subcontractor at any tier, 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.

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### **STANDARD SUPPLEMENTARY CONDITIONS**

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- 3.17** *Insert the following at the end of Section 3.6:*  
The Contractor shall comply with the requirements of Title 12, Chapter 8 of the South Carolina Code of Laws, as amended, regarding withholding tax for nonresidents, employees, contractors and subcontractors.
- 3.18** *In Section 3.7.1, delete the words “the building permit as well as for other” and insert the following sentence at the end of this section:*  
Pursuant to Title 10, Chapter 1, Section 180 of the South Carolina Code of Laws, as amended, no local general or specialty building permits are required for state buildings.
- 3.19** *Delete the last sentence of Section 3.7.5 and substitute the following:*  
Adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 7.3.3.
- 3.20** *Delete the last sentence of Section 3.8.2.3 and substitute the following:*  
The amount of the Change Order shall reflect the difference between actual costs, as documented by invoices, and the allowances under Section 3.8.2.1.
- 3.21** *In Section 3.9.1, insert a comma after the word “superintendent” in the first sentence and insert the following after the inserted comma:*  
acceptable to the Owner,
- 3.22** *Delete Section 3.9.2 and substitute the following:*  
**3.9.2** The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the name and qualifications of a proposed superintendent. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner has reasonable objection to the proposed superintendent or (2) that the Owner requires additional time to review. Failure of the Owner to reply within the 14-day period shall constitute notice of no reasonable objection.
- 3.23** *After the first sentence in Section 3.9.3, insert the following sentence:*  
The Contractor shall notify the Owner, in writing, of any proposed change in the superintendent, including the reason therefore, prior to making such change.
- 3.24** *Delete Section 3.10.3 and substitute the following:*  
**3.10.3** Additional requirements, if any, for the constructions schedule are as follows:  
(Check box if applicable to this Contract))  
 The construction schedule shall be in a detailed precedence-style critical path management (CPM) or primavera-type format satisfactory to the Owner and the Architect that shall also (1) provide a graphic representation of all activities and events that will occur during performance of the work; (2) identify each phase of construction and occupancy; and (3) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as “Milestone Dates”). Upon review and acceptance by the Owner and the Architect of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents and attached to the Agreement as Exhibit “A.” If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted for acceptance. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. Whenever the approved construction schedule no longer reflects actual conditions and progress of the work or the Contract Time is modified in accordance with the terms of the Contract Documents, the Contractor shall update the accepted construction schedule to reflect such conditions. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone Date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.
- 3.25** *Add the following Section 3.10.4:*  
**3.10.4** Owner’s review and acceptance of Contractor’s schedule is not conducted for the purpose of either determining its accuracy and completeness or approving the construction means, methods, techniques, sequences or procedures. The Owner’s approval shall not relieve the Contractor of any obligations. Unless expressly addressed in a Modification, the Owner's approval of a schedule shall not change the Contract Time.

## OSE FORM 00811

### STANDARD SUPPLEMENTARY CONDITIONS

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**3.26** *Add the following Section 3.12.5.1:*

**3.12.5.1** The fire sprinkler shop drawings shall be prepared by a licensed fire sprinkler contractor and shall accurately reflect actual conditions affecting the required layout of the fire sprinkler system. The fire sprinkler contractor shall certify the accuracy of his shop drawings prior to submitting them for review and approval. The fire sprinkler shop drawings shall be reviewed and approved by the Architect's engineer of record who, upon approving the sprinkler shop drawings will submit them to the State Fire Marshal or other authorities having jurisdiction for review and approval. The Architect's engineer of record will submit a copy of the State Fire Marshal's approval letter to the Contractor, Architect, and OSE. Unless authorized in writing by OSE, neither the Contractor nor subcontractor at any tier shall submit the fire sprinkler shop drawings directly to the State Fire Marshal or other authorities having jurisdiction for approval.

**3.27** *In the fourth sentence of Section 3.12.10, after the comma following the words "licensed design professional," insert the following:*

who shall comply with reasonable requirements of the Owner regarding qualifications and insurance and

**3.28** *In Section 3.13, insert the section number "3.13.1" before the opening words "The Contractors shall."*

**3.29** *Add the following Sections 3.13.2 and 3.13.3:*

**3.13.2** Protection of construction materials and equipment stored at the Project site from weather, theft, vandalism, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall perform the work in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and all adjacent areas. The Work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the Work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions.

**3.13.3** The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner.

**3.30** *In the first sentence of Section 3.18.1, after the parenthetical "... (other than the Work itself), ..." and before the word "...but...", insert the following:*

including loss of use resulting therefrom,

**3.31** *Delete Section 4.1.1 and substitute the following:*

**4.1.1** The Architect is that person or entity identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**3.32** *Insert the following at the end of Section 4.2.1:*

Any reference in the Contract Documents to the Architect taking action or rendering a decision with a "reasonable time" is understood to mean no more than fourteen days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

**3.33** *Delete the first sentence of Section 4.2.2 and substitute the following:*

The Architect will visit the site as necessary to fulfill its obligation to the Owner for inspection services, if any, and, at a minimum, to assure conformance with the Architect's design as shown in the Contract Documents and to observe the progress and quality of the various components of the Contractor's Work, and to determine 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.

**3.34** *Delete the first sentence of Section 4.2.3 and substitute the following:*

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 report to the Owner (1) deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work.

**3.35** *In Section 4.2.5, after the words "evaluations of the" and before the word "Contractor's," insert the following:*

Work completed and correlated with the

**3.36** *Delete the first sentence of Section 4.2.11 and substitute the following:*

**4.2.11** The Architect will, in the first instance, interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. Upon receipt of such request, the Architect will promptly provide the non-requesting party with a copy of the request.

## OSE FORM 00811

### STANDARD SUPPLEMENTARY CONDITIONS

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**3.37** *Insert the following at the end of Section 4.2.12:*

If either party disputes the Architects interpretation or decision, that party may proceed as provided in Article 15. The Architect's interpretations and decisions may be, but need not be, accorded any deference in any review conducted pursuant to law or the Contract Documents.

**3.38** *Delete Section 4.2.14 and substitute the following:*

The Architect will review and respond to requests for information about the Contract Documents so as to avoid delay to the construction of the Project. The Architect's response to such requests will be made in writing with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. Any response to a request for information must be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. Unless issued pursuant to a Modification, supplemental Drawings or Specifications will not involve an adjustment to the Contract Sum or Contract Time.

**3.39** *Delete Section 5.2.1 and substitute the following:*

**5.2.1** Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, within fourteen days after posting of the Notice of Intent to Award the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (excluding Listed Subcontractors but including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner has reasonable objection to any such proposed person or entity. Failure of the Owner to reply within the 14 day period shall constitute notice of no reasonable objection.

**3.40** *Delete Section 5.2.2 and substitute the following:*

**5.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner has made reasonable and timely objection. The Owner shall not direct the Contractor to contract with any specific individual or entity for supplies or services unless such supplies and services are necessary for completion of the Work and the specified individual or entity is the only source of such supply or services.

**3.41** *In the first sentence of Section 5.2.3, delete the words "...or Architect..." in the two places they appear.*

**3.42** *Delete the words "...or Architect..." in the in the first sentence of Section 5.2.4 and insert the following sentence at the end of Section 5.2.4:*

The Contractor's request for substitution must be made to the Owner in writing accompanied by supporting information.

**3.43** *Add the following Section 5.2.5:*

**5.2.5** A Subcontractor identified in the Contractor's Bid in response the specialty subcontractor listing requirements of Section 7 of the Bid Form (SE-330) may only be substituted in accordance with and as permitted by the provisions of Title 11, Chapter 35, Section 3021 of the South Carolina Code of Laws, as amended. A proposed substitute for a Listed Subcontractor shall be subject to the Owner's approval as set forth in Section 5.2.3.

**3.44** *Add the following Section 5.2.6:*

**5.2.6** The Iran Divestment Act List is a list published by the State Fiscal Accountability Authority pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Currently, the list is available at the following URL: <http://procurement.sc.gov/PS/PS-iran-divestment.phtm>(.) Consistent with Section 11-57-330(B), the Contractor shall not contract with any person to perform a part of the Work, if, at the time you enter into the subcontract, that person is on the then-current version of the Iran Divestment Act List.

**3.45** *In Section 5.3, delete everything following the heading "SUBCONTRACTUAL RELATIONS" and insert the following Sections 5.3.1, 5.3.2, 5.3.3, and 5.3.4:*

**5.3.1** 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, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise herein or in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract



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### STANDARD SUPPLEMENTARY CONDITIONS

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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.

**5.3.2** Without limitation on the generality of Section 5.3.1, each Subcontract agreement and each Sub-subcontract agreement shall include, and shall be deemed to include, the following Sections of these General Conditions: 3.2, 3.5, 3.18, 5.3, 5.4, 6.2.2, 7.3.3, 7.5, 7.6, 13.1, 13.12, 14.3, 14.4, and 15.1.6.

**5.3.3** Each Subcontract Agreement and each Sub-subcontract agreement shall exclude, and shall be deemed to exclude, Sections 13.2.1 and 13.6 and all of Article 15, except Section 15.1.6, of these General Conditions. In the place of these excluded sections of the General Conditions, each Subcontract Agreement and each Sub-subcontract may include Sections 13.2.1 and 13.6 and all of Article 15, except Section 15.1.6, of AIA Document A201-2007, Conditions of the Contract, as originally issued by the American Institute of Architects.

**5.3.4** The Contractor shall assure the Owner that all agreements between the Contractor and its Subcontractor incorporate the provisions of Subparagraph 5.3.1 as necessary to preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the work to be performed by Subcontractors so that the subcontracting thereof will not prejudice such rights. The Contractor's assurance shall be in the form of an affidavit or in such other form as the Owner may approve. Upon request, the Contractor shall provide the Owner or Architect with copies of any or all subcontracts or purchase orders.

**3.46** *Delete the last sentence of Section 5.4.1.*

**3.47** *Add the following Sections 5.4.4, 5.4.5 and 5.4.6:*

**5.4.4** Each subcontract shall specifically provide that the Owner shall only be responsible to the subcontractor for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

**5.4.5** Each subcontract shall specifically provide that the Subcontractor agrees to perform portions of the Work assigned to the Owner in accordance with the Contract Documents.

**5.4.6** Nothing in this Section 5.4 shall act to reduce or discharge the Contractor's payment bond surety's obligations to claimants for claims arising prior to the Owner's exercise of any rights under this conditional assignment.

**3.48** *Delete the language of Section 6.1.4 and substitute the word "Reserved."*

**3.49** *Insert the following at the end of Section 7.1.2:*

If the amount of a Modification exceeds the limits of the Owner's Construction Change Order Certification (reference Section 9.1.7.2 of the Agreement), then the Owner's agreement is not effective, and Work may not proceed, until approved in writing by the Office of State Engineer.

**3.50** *Delete Section 7.2.1 and substitute the following:*

**7.2.1** A Change Order is a written instrument prepared by the Architect (using State Form SE-380 "Construction Change Order") and signed by the Owner, Contractor and Architect 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.

**3.51** *Add the following Sections 7.2.2, 7.2.3, 7.2.4, and 7.2.5:*

**7.2.2** If a Change Order provides for an adjustment to the Contract Sum, the adjustment must be calculated in accordance with Section 7.3.3.

**7.2.3** At the Owner's request, the Contractor shall prepare a proposal to perform the work of a proposed Change Order setting forth the amount of the proposed adjustment, if any, in the Contract Sum; and the extent of the proposed adjustment, if any, in the Contract Time. Any proposed adjustment in the Contract sum shall be prepared in accordance with Section 7.2.2. The Owner's request shall include any revisions to the Drawings or Specifications necessary to define any changes in the Work. Within fifteen days of receiving the request, the Contractor shall submit the proposal to the Owner and Architect along with all documentation required by Section 7.6.

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**7.2.4** If the Contractor requests a Change Order, the request shall set forth the proposed change in the Work and shall be prepared in accordance with Section 7.2.3. If the Contractor requests a change to the Work that involves a revision to either the Drawings or Specifications, the Contractor shall reimburse the Owner for any expenditure associated with the Architects' review of the proposed revisions, except to the extent the revisions are accepted by execution of a Change Order.

**7.2.5** Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, any adjustments to the Contract Sum or the Contract Time.

**3.52** *Delete 7.3.3 and substitute the following:*

#### **7.3.3 PRICE ADJUSTMENTS**

**7.3.3.1** If any Modification, including a Construction Change Directive, provides for an adjustment to the Contract Sum, the adjustment shall be based on whichever of the following methods is the most valid approximation of the actual cost to the contractor, with overhead and profit as allowed by Section 7.5:

- .1** Mutual acceptance of a lump sum;
- .2** Unit prices stated in the Contract Documents, except as provided in Section 7.3.4, or subsequently agreed upon;
- .3** Cost attributable to the events or situations under applicable clauses with adjustment of profits or fee, all as specified in the contract, or subsequently agreed upon by the parties, or by some other method as the parties may agree; or
- .4** As provided in Section 7.3.7.

**7.3.3.2** Consistent with Section 7.6, costs must be properly itemized and supported by substantiating data sufficient to permit evaluation before commencement of the pertinent performance or as soon after that as practicable. All costs incurred by the Contractor must be justifiably compared with prevailing industry standards. Except as provided in Section 7.5, all adjustments to the Contract Price shall be limited to job specific costs and shall not include indirect costs, overhead, home office overhead, or profit.

**3.53** *Delete Section 7.3.7 and substitute the following:*

**7.3.7** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall make an initial determination, consistent with Section 7.3.3, of the method and 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 Section 7.5. In such case, and also under Section 7.3.3.1.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1** Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .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; and
- .4** Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work.

**3.54** *Delete Section 7.3.8 and substitute the following:*

**7.3.8** Using the percentages stated in Section 7.5, any adjustment to the Contract Sum for deleted work shall include any overhead and profit attributable to the cost for the deleted Work.

**3.55** *Add the following Sections 7.5 and 7.6:*

#### **7.5 AGREED OVERHEAD AND PROFIT RATES**

**7.5.1** For any adjustment to the Contract Sum for which overhead and profit may be recovered, other than those made pursuant to Unit Prices stated in the Contract Documents, the Contractor agrees to charge and accept, as full payment for overhead and profit, the following percentages of costs attributable to the change in the Work. The percentages cited below shall be considered to include all indirect costs including, but not limited to: field and office managers, supervisors and assistants, incidental job burdens, small tools, and general overhead allocations. The allowable percentages for overhead and profit are as follows:

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- .1 To the Contractor for work performed by the Contractor's own forces, 17% of the Contractor's actual costs.
- .2 To each Subcontractor for work performed by the Subcontractor's own forces, 17% of the subcontractor's actual costs.
- .3 To the Contractor for work performed by a subcontractor, 10% of the subcontractor's actual costs (not including the subcontractor's overhead and profit).

#### 7.6 PRICING DATA AND AUDIT

##### 7.6.1 Cost or Pricing Data.

Upon request of the Owner or Architect, Contractor shall submit cost or pricing data prior to execution of a Modification which exceeds \$500,000. Contractor shall certify that, to the best of its knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date prior to the date of pricing the Modification. Contractor's price, including profit, shall be adjusted to exclude any significant sums by which such price was increased because Contractor furnished cost or pricing data that was inaccurate, incomplete, or not current as of the date specified by the parties. Notwithstanding Subparagraph 9.10.4, such adjustments may be made after final payment to the Contractor.

**7.6.2** Cost or pricing data means all facts that, as of the date specified by the parties, prudent buyers and sellers would reasonably expect to affect price negotiations significantly. Cost or pricing data are factual, not judgmental; and are verifiable. While they do not indicate the accuracy of the prospective contractor's judgment about estimated future costs or projections, they do include the data forming the basis for that judgment. Cost or pricing data are more than historical accounting data; they are all the facts that can be reasonably expected to contribute to the soundness of estimates of future costs and to the validity of determinations of costs already incurred.

##### 7.6.3 Records Retention.

As used in Section 7.6, the term "records" means any books or records that relate to cost or pricing data that Contractor is required to submit pursuant to Section 7.6.1. Contractor shall maintain records for three years from the date of final payment, or longer if requested by the chief procurement officer. The Owner may audit Contractor's records at reasonable times and places.

#### 3.56 Delete Section 8.2.2 and substitute the following:

**8.2.2** The Contractor shall not knowingly commence operations on the site or elsewhere prior to the effective date of surety bonds and insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such surety bonds or insurance.

#### 3.57 Delete Section 8.3.1 and substitute the following:

**8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the control of the Contractor and any subcontractor at any tier; or by delay authorized by the Owner pending dispute resolution; or by other causes that the Architect determines may justify delay, then to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and provided the delay (1) is not caused by the fault or negligence of the Contractor or a subcontractor at any tier and (2) is not due to unusual delay in the delivery of supplies, machinery, equipment, or services when such supplies, machinery, equipment, or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery, the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

#### 3.58 Insert the following at the end of Section 9.1:

All changes to the Contract Sum shall be adjusted in accordance with Section 7.3.3.

#### 3.59 Delete Section 9.2 and substitute the following:

##### 9.2 SCHEDULE OF VALUES

**9.2.1** The Contractor shall submit to the Architect, within ten days of full execution of the Agreement, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. As requested by the Architect, the Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown being submitted on a uniform standardized format approved by the Architect and Owner. The breakdown shall be divided in detail, using convenient units, sufficient to accurately determine the value

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of completed Work during the course of the Project. The Contractor shall update the schedule of values as required by either the Architect or Owner as necessary to reflect:

- .1 the description of Work (listing labor and material separately);
- .2 the total value;
- .3 the percent and value of the Work completed to date;
- .4 the percent and value of previous amounts billed; and
- .5 the current percent completed and amount billed.

**9.2.2** Any schedule of values or trade breakdown that fails to include sufficient detail, is unbalanced, or exhibits "front-loading" of the value of the Work shall be rejected. If a schedule of values or trade breakdown is used as the basis for payment and later determined to be inaccurate, sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

**3.60** *Delete Section 9.3.1 and substitute the following:*

Monthly, the Contractor shall submit to the Architect 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. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require (such as copies of requisitions from Subcontractors and material suppliers) and shall reflect retainage and any other adjustments provided in Section 5 of the Agreement. If required by the Owner or Architect, the Application for Payment shall be accompanied by a current construction schedule.

**3.61** *In Section 9.3.2, add the following words to the end of the second sentence:*

provided such materials or equipment will be subsequently incorporated in the Work

*Insert the following at the end of Section 9.3.2:*

The Contractor shall 1) protect such materials from diversion, vandalism, theft, destruction, and damage, 2) mark such materials specifically for use on the Project, and 3) segregate such materials from other materials at the storage facility. The Architect and the Owner shall have the right to make inspections of the storage areas at any time.

**3.62** *In Section 9.4.2, in the first sentence, after the words "Work has progressed to the point indicated," insert the following:*

in both the Application for Payment and, if required to be submitted by the Contractor, the accompanying current construction schedule

*In the last sentence, delete the third item starting with "(3) reviewed copies" and ending with "Contractor's right to payment,"*

**3.63** *In Section 9.5.1, in the first sentence, delete the word "may" after the opening words "The Architect" and substitute the word "shall."*

*In Section 9.5.1, insert the following sentence after the first sentence:*

The Architect shall withhold a Certificate of Payment if the Application for Payment is not accompanied by the current construction schedule required by Section 3.10.1.

**3.64** *In Section 9.6.2, delete the word "The..." at the beginning of the first sentence and substitute the following:*

Pursuant to Chapter 6 of Title 29 of the South Carolina Code of Laws, as amended, the

**3.65** *Delete Section 9.7 and substitute following:*

#### **9.7 FAILURE OF PAYMENT**

If the Architect does not issue a Certificate for Payment to the Owner, 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 time established in the Contract Documents the amount certified by the Architect or awarded by a final dispute resolution order, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased, in accordance with the provisions of Section 7.3.3, by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

**3.66** *Insert the following words at the end of the sentence in Section 9.8.1:*

and when all required occupancy permits, if any, have been issued and copies have been delivered to the Owner.

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**3.67** *In Section 9.8.2, insert the word “written” after the word “comprehensive” and before the word “list.”*

**3.68** *Delete Section 9.8.3 and substitute the following:*

**9.8.3.1** Upon receipt of the Contractor’s list, the Architect, with the Owner and any other person the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to the Architect, Owner, and Contractor, to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents. If the Architect’s inspection discloses any item, whether or not included on the Contractor’s list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of reinspections or, at the Owner’s option, the costs may be deducted from payments due to the Contractor.

**9.8.3.2** If the Architect and Owner concur in the Contractor’s assessment that the Work or a portion of the Work is safe to occupy, the Owner and Contractor may arrange for a Certificate of Occupancy Inspection by OSE. The Owner, Architect, and Contractor shall be present at OSE’s inspection. Upon verifying that the Work or a portion of the Work is substantially complete and safe to occupy, OSE will issue, as appropriate, a Full or Partial Certificate of Occupancy.

**3.69** *In the second sentence of Section 9.8.5, delete the words “and consent of surety, if any.”*

**3.70** *In the first sentence of Section 9.9.1, delete the words “Section 11.3.1.5” and substitute the words “Section 11.3.1.3.”*

**3.71** *Delete Section 9.10.1 and substitute the following:*

**9.10.1** Unless the parties agree otherwise in the Certificate of Substantial Completion, the Contractor shall achieve Final Completion no later than thirty days after Substantial Completion. Upon receipt of the Contractor’s written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect, with the Owner and any other person the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to the Architect, Owner, and Contractor, and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect’s knowledge, information and belief, and on the basis of the Architect’s on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect’s final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor’s being entitled to final payment have been fulfilled. If more than one Final Completion inspection is required, the Contractor shall reimburse the Owner for all costs of reinspections or, at the Owner’s option, the costs may be deducted from payments due to the Contractor. If the Contractor does not achieve final completion within thirty days after Substantial Completion or the timeframe agreed to by the parties in the Certificate of Substantial Completion, whichever is greater, the Contractor shall be responsible for any additional Architectural fees resulting from the delay.

**3.72** *Delete the first sentence of Section 9.10.2 and substitute the following:*

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 and will not be canceled or allowed to expire until at least 30 days’ prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial 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), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, 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, (6) required Training Manuals, (7) equipment Operations and Maintenance Manuals, (8) any certificates of testing, inspection or approval required by the Contract Documents and not previously provided (9) all warranties and guarantees required under or pursuant to the Contract Documents, and (10) one copy of the Documents required by Section 3.11.

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**3.73** Delete the first sentence of Section 9.10.3 and substitute the following:

If, after Substantial Completion of the Work, final completion thereof is delayed 60 days through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted.

**3.74** Delete Section 9.10.5 and substitute the following:

**9.10.5** Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those specific claims in stated amounts that have been previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

**3.75** Add the following Section 9.10.6:

**9.10.6** If OSE has not previously issued a Certificate of Occupancy for the entire Project, the Parties shall arrange for a representative of OSE to participate in the Final Completion Inspection. Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present at the Final Completion Inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.

**3.76** Delete Section 10.3.1 and substitute the following:

**10.3.1** If the Contractor encounters a hazardous material or substance which was not discoverable as provided in Section 3.2.1 and not required by the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons or serious loss to real or personal property resulting from such material or substance encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. Hazardous materials or substances are those hazardous, toxic, or radioactive materials or substances subject to regulations by applicable governmental authorities having jurisdiction, such as, but not limited to, the S.C. Department of Health and Environmental Control, the U.S. Environmental Protection Agency, and the U.S. Nuclear Regulatory Commission.

**3.77** Insert the following at the end of Section 10.3.2:

In the absence of agreement, the Architect will make an interim determination regarding any delay or impact on the Contractor's additional costs. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15. Any adjustment in the Contract Sum shall be determined in accordance with Section 7.3.3.

**3.78** Delete Section 10.3.3 and substitute the following:

**10.3.3** The Work in the affected area shall be resumed immediately following the occurrence of any one of the following events: (a) the Owner causes remedial work to be performed that results in the absence of hazardous materials or substances; (b) the Owner and the Contractor, by written agreement, decide to resume performance of the Work; or (c) the Work may safely and lawfully proceed, as determined by an appropriate governmental authority or as evidenced by a written report to both the Owner and the Contractor, which is prepared by an environmental engineer reasonably satisfactory to both the Owner and the Contractor.

**3.79** In Section 10.3.5, delete the word "The" at the beginning of the sentence and substitute the following:

In addition to its obligations under Section 3.18, the

**3.80** Delete the language of Section 10.3.6 and substitute the word "Reserved."

**3.81** Insert the following at the end of Section 10.4:

The Contractor shall immediately give the Architect notice of the emergency. This initial notice may be oral followed within five days by a written notice setting forth the nature and scope of the emergency. Within fourteen days of the start of the emergency, the Contractor shall give the Architect a written estimate of the cost and probable effect of delay on the progress of the Work.

**3.82** Delete 11.1.2 and substitute the following:

**11.1.2** The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified below or required by law, whichever coverage is greater. Coverages shall be written on an occurrence basis and shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

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- (1) COMMERCIAL GENERAL LIABILITY:
  - (a) General Aggregate (per project) ..... \$1,000,000
  - (b) Products/Completed Operations ..... \$1,000,000
  - (c) Personal and Advertising Injury ..... \$1,000,000
  - (d) Each Occurrence ..... \$1,000,000
  - (e) Fire Damage (Any one fire) ..... \$50,000
  - (f) Medical Expense (Any one person) ..... \$5,000
- (2) BUSINESS AUTO LIABILITY (including All Owned, Non-owned, and Hired Vehicles):
  - (a) Combined Single Limit ..... \$1,000,000
- (3) WORKER'S COMPENSATION:
  - (a) State Statutory
  - (b) Employers Liability ..... \$100,000 per Acc.  
 ..... \$500,000 Disease, Policy Limit  
 ..... \$100,000 Disease, Each Employee

In lieu of separate insurance policies for Commercial General Liability, Business Auto Liability, and Employers Liability, the Contractor may provide an umbrella policy meeting or exceeding all coverage requirements set forth in this Section 11.1.2. The umbrella policy limits shall not be less than \$3,000,000.

**3.83** *Delete Section 11.1.3 and substitute the following:*

**11.1.3** Prior to commencement of the Work, and thereafter upon replacement of each required policy of insurance, Contractor shall provide to the Owner a written endorsement to the Contractor's general liability insurance policy that:

- (i) names the Owner as an additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations;
- (ii) provides that no material alteration, cancellation, non-renewal, or expiration of the coverage contained in such policy shall have effect unless all additional insureds have been given at least ten (10) days prior written notice of cancellation for non-payment of premiums and thirty (30) days prior written notice of cancellation for any other reason; and
- (iii) provides that the Contractor's liability insurance policy shall be primary, with any liability insurance of the Owner as secondary and noncontributory.

Prior to commencement of the Work, and thereafter upon renewal or replacement of each required policy of insurance, Contractor shall provide to the Owner a signed, original certificate of liability insurance (ACORD 25). Consistent with this Section 11.1, the certificate shall identify the types of insurance, state the limits of liability for each type of coverage, name the Owner a Consultants as Certificate Holder, provide that the general aggregate limit applies per project, and provide that coverage is written on an occurrence basis. Both the certificates and the endorsements must be received directly from either the Contractor's insurance agent or the insurance company. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, naming the Owner as an additional insured for claims made under the Contractor's completed operations, and otherwise meeting the above requirements, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

**3.84** *Delete Section 11.1.4 and substitute the following:*

**11.1.4** A failure by the Owner to either (i) demand a certificate of insurance or written endorsement required by Section 11.1, or (ii) reject a certificate or endorsement on the grounds that it fails to comply with Section 11.1, shall not be considered a waiver of Contractor's obligations to obtain the required insurance.

**3.85** *In Section 11.3.1, delete the first sentence and substitute the following:*

Unless otherwise provided in the Contract Documents, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis.

**3.86** *Delete the language of Section 11.3.1.2 and substitute the word "Reserved."*

**3.87** *Delete the language of Section 11.3.1.3 and substitute the word "Reserved."*

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**3.88** *Delete Section 11.3.2 and substitute the following:*

#### **11.3.2 BOILER AND MACHINERY INSURANCE**

The Contractor shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall both be named insureds.

**3.89** *Delete Section 11.3.3 and substitute the following:*

#### **11.3.3 LOSS OF USE INSURANCE**

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. To the extent any losses are covered and paid for by such insurance, the Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

**3.90** *Delete Section 11.3.4 and substitute the following:*

**11.3.4** If the Owner requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

**3.91** *Delete the language of Section 11.3.5 and substitute the word "Reserved."*

**3.92** *Delete Section 11.3.6 and substitute the following:*

**11.3.6** Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Owner.

**3.93** *Delete the first sentence of Section 11.3.7 and substitute the following:*

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, 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 the property insurance provided by the Contractor pursuant to this Section 11.3 covers and pays for the damage, except such rights as they have to proceeds of such insurance held by the Contractor as fiduciary.

**3.94** *Delete the first sentence of Section 11.3.8 and substitute the following:*

A loss insured under the Contractor's property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10.

**3.95** *Delete Section 11.3.9 and substitute the following:*

**11.3.9** If required in writing by a party in interest, the Contractor as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Contractor's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Contractor shall deposit in a separate account proceeds so received, which the Contractor shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor.

**3.96** *Delete Section 11.3.10 and substitute the following:*

**11.3.10** The Contractor as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Contractor's exercise of this power; if such objection is made, the dispute shall be resolved in the manner provided in the contract between the parties in dispute as the method of binding dispute resolution. The Contractor as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with a final order or determination issued by the appropriate authority having jurisdiction over the dispute.



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**3.97** *Delete Section 11.4.1 and substitute the following:*

**11.4.1** Before commencing any services hereunder, the Contractor shall provide the Owner with Performance and Payment Bonds, each in an amount not less than the Contract Price set forth in Article 4 of the Agreement. The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount. The Performance Bond shall be written on Form SE-355, "Performance Bond" and the Payment Bond shall be written on Form SE-357, "Labor and Material Payment Bond", and both shall be made payable to the Owner.

**3.98** *Delete Section 11.4.2 and substitute the following:*

**11.4.2** The Performance and Labor and Material Payment Bonds shall:

- .1** be issued by a surety company licensed to do business in South Carolina;
- .2** be accompanied by a current power of attorney and certified by the attorney-in-fact who executes the bond on the behalf of the surety company; and
- .3** remain in effect for a period not less than one (1) year following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer.

**3.99** *Add the following Sections 11.4.3 and 11.4.4:*

**11.4.3** Any bonds required by this Contract shall meet the requirements of the South Carolina Code of Laws and Regulations, as amended.

**11.4.4** 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.

**3.100** *Delete Section 12.1.1 and substitute the following:*

**12.1.1** If a portion of the Work is covered contrary to the requirements specifically expressed in the Contract Documents, including inspections of work-in-progress required by all authorities having jurisdiction over the Project, it must, upon demand of the Architect or authority having jurisdiction, be uncovered for observation and be replaced at the Contractor's expense without change in the Contract Time.

**3.101** *In Section 12.2.2.1, delete the words "and to make a claim for breach of warranty" at the end of the third sentence.*

**3.102** *In Section 12.2.2.3, add the following to the end of the sentence:*

unless otherwise provided in the Contract Documents.

**3.103** *Insert the following at the end of Section 12.2.4:*

If, prior to the date of Substantial Completion, the Contractor, a Subcontractor, or anyone for whom either is responsible, uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing, and other building systems, machinery, equipment, or other mechanical device, the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner.

**3.104** *Delete Section 13.1 and substitute the following:*

**13.1 GOVERNING LAW**

The Contract, any dispute, claim, or controversy relating to the Contract, and all the rights and obligations of the parties shall, in all respects, be interpreted, construed, enforced and governed by and under the laws of the State of South Carolina, except its choice of law rules.

**3.105** *Delete Section 13.2, including its Sub-Sections 13.2.1 and 13.2.2, and substitute the following:*

**13.2 SUCCESSORS AND ASSIGNS**

The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole, or in part, without written consent of the other and then only in accordance with and as permitted by Regulation 19-445.2180 of the South Carolina Code of Regulations, as amended. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

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**3.106** *Delete Section 13.3 and substitute the following:*

#### **13.3 WRITTEN NOTICE**

Unless otherwise permitted herein, all notices contemplated by the Contract Documents shall be in writing and shall be deemed given:

- .1** upon actual delivery, if delivery is by hand;
- .2** upon receipt by the transmitting party of confirmation or reply, if delivery is by electronic mail, facsimile, telex or telegram;
- .3** upon receipt, if delivery is by the United States mail.

Notice to Contractor shall be to the address provided in Section 8.3.2 of the Agreement. Notice to Owner shall be to the address provided in Section 8.2.2 of the Agreement. Either party may designate a different address for notice by giving notice in accordance with this paragraph.

**3.107** *In Section 13.4.1, insert the following at the beginning of the sentence:*

Unless expressly provided otherwise,

**3.108** *Add the following Section 13.4.3:*

**13.4.3** Notwithstanding Section 9.10.4, the rights and obligations which, by their nature, would continue beyond the termination, cancellation, rejection, or expiration of this contract shall survive such termination, cancellation, rejection, or expiration, including, but not limited to, the rights and obligations created by the following clauses:

- 1.5** Ownership and Use of Drawings, Specifications and Other Instruments of Service;
- 3.5** Warranty
- 3.17** Royalties, Patents and Copyrights
- 3.18** Indemnification
- 7.6** Cost or Pricing Data
- 11.1** Contractor's Liability Insurance
- 11.4** Performance and Payment Bond
- 15.1.6** Claims for Listed Damages
- 15.1.7** Waiver of Claims Against the Architect
- 15.6** Dispute Resolution
- 15.6.5** Service of Process

**3.109** *Delete Section 13.6 and substitute the following:*

#### **13.6 INTEREST**

Payments due to the Contractor and unpaid under the Contract Documents shall bear interest only if and to the extent allowed by Title 29, Chapter 6, Article 1 of the South Carolina Code of Laws. Amounts due to the Owner shall bear interest at the rate of one percent a month or a pro rata fraction thereof on the unpaid balance as may be due.

**3.110** *Delete the language of Section 13.7 and substitute the word "Reserved."*

**3.111** *Add the following Sections 13.8 through 13.17:*

#### **13.8 PROCUREMENT OF MATERIALS BY OWNER**

The Contractor accepts assignment of all purchase orders and other agreements for procurement of materials and equipment by the Owner that are identified as part of the Contract Documents. The Contractor shall, upon delivery, be responsible for the storage, protection, proper installation, and preservation of such Owner purchased items, if any, as if the Contractor were the original purchaser. The Contract Sum includes, without limitation, all costs and expenses in connection with delivery, storage, insurance, installation, and testing of items covered in any assigned purchase orders or agreements. Unless the Contract Documents specifically provide otherwise, all Contractor warranty of workmanship and correction of the Work obligations under the Contract Documents shall apply to the Contractor's installation of and modifications to any Owner purchased items,.

#### **13.9 INTERPRETATION OF BUILDING CODES**

As required by Title 10, Chapter 1, Section 180 of the South Carolina Code of Laws, as amended, OSE shall determine the enforcement and interpretation of all building codes and referenced standards on state buildings. The Contractor shall refer any questions, comments, or directives from local officials to the Owner and OSE for resolution.

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#### **13.10 MINORITY BUSINESS ENTERPRISES**

Contractor shall notify Owner of each Minority Business Enterprise (MBE) providing labor, materials, equipment, or supplies to the Project under a contract with the Contractor. Contractor's notification shall be via the first monthly status report submitted to the Owner after execution of the contract with the MBE. For each such MBE, the Contractor shall provide the MBE's name, address, and telephone number, the nature of the work to be performed or materials or equipment to be supplied by the MBE, whether the MBE is certified by the South Carolina Office of Small and Minority Business Assistance, and the value of the contract.

#### **13.11 SEVERABILITY**

If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

#### **13.12 ILLEGAL IMMIGRATION**

Contractor certifies and agrees that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the State upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable both to Contractor and its subcontractors or sub-subcontractors; or (b) that Contractor and its subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." Contractor agrees to include in any contracts with its subcontractors language requiring its subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractors language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at [www.procurement.sc.gov](http://www.procurement.sc.gov))

#### **13.13 SETOFF**

The Owner shall have all of its common law, equitable, and statutory rights of set-off.

#### **13.14 DRUG-FREE WORKPLACE**

The Contractor certifies to the Owner that Contractor will provide a Drug-Free Workplace, as required by Title 44, Chapter 107 of the South Carolina Code of Laws, as amended.

#### **13.15 FALSE CLAIMS**

According to the S.C. Code of Laws § 16-13-240, "a person who by false pretense or representation obtains the signature of a person to a written instrument or obtains from another person any chattel, money, valuable security, or other property, real or personal, with intent to cheat and defraud a person of that property is guilty" of a crime.

#### **13.16 NON-INDEMNIFICATION:**

Any term or condition is void to the extent it requires the State to indemnify anyone. It is unlawful for a person charged with disbursements of state funds appropriated by the General Assembly to exceed the amounts and purposes stated in the appropriations. (§ 11-9-20) It is unlawful for an authorized public officer to enter into a contract for a purpose in which the sum is in excess of the amount appropriated for that purpose. It is unlawful for an authorized public officer to divert or appropriate the funds arising from any tax levied and collected for any one fiscal year to the payment of an indebtedness contracted or incurred for a previous year. (§ 11-1-40)

#### **13.17 OPEN TRADE (JUN 2015):**

During the contract term, including any renewals or extensions, Contractor will not engage in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in SC Code Section 11-35-5300. [07-7A053-1]

#### **3.112 Delete Section 14.1.1 and substitute the following:**

**14.1.1** The Contractor may terminate the Contract if the Work is stopped for a period of 45 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1** Issuance of an order of a court or other public authority having jurisdiction that requires substantially all Work to be stopped; or
- .2** An act of government, such as a declaration of national emergency that requires substantially all Work to be stopped.

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- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1 or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents and the Contractor has stopped work in accordance with Section 9.7

**3.113** *Insert the following at the end of Section 14.1.3:*

Any adjustment to the Contract Sum pursuant to this Section shall be made in accordance with the requirements of Article 7.

**3.114** *In Section 14.1.4, replace the word “repeatedly” with the word “persistently.”*

**3.115** *Delete Section 14.2.1 and substitute the following:*

**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, or otherwise fails to prosecute the Work, or any separable part of the Work, with the diligence, resources and skill that will ensure its completion within the time specified in the Contract Documents, including any authorized adjustments;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the Contract Documents and the respective agreements between the Contractor and the Subcontractors;
- .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.

**3.116** *In Section 14.2.2, delete the parenthetical statement “, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action,” immediately following the word “Owner” in the first line.*

**3.117** *In Section 14.2.4, replace the words “Initial Decision Maker” with the word “Architect”*

**3.118** *Add the following Section 14.2.5:*

**14.2.5** If, after termination for cause, it is determined that the Owner lacked justification to terminate under Section 14.2.1, or that the Contractor’s default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Owner under Section 14.4.

**3.119** *Delete the second sentence of Section 14.3.2 and substitute the following:*

Any adjustment to the Contract Sum made pursuant to this section shall be made in accordance with the requirements of Article 7.3.3.

**3.120** *Delete Section 14.4.1 and substitute the following:*

**14.4.1** The Owner may, at any time, terminate the Contract, in whole or in part for the Owner’s convenience and without cause. The Owner shall give written notice of the termination to the Contractor specifying the part of the Contract terminated and when termination becomes effective.

**3.121** *Delete Section 14.4.2 and substitute the following:*

**14.4.2** Upon receipt of written 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;
- .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; and
- .4 complete the performance of the Work not terminated, if any.

**3.122** *Delete Section 14.4.3 and substitute the following:*

**14.4.3** In case of such termination for the Owner’s convenience, the Contractor shall be entitled to receive payment for Work executed, costs incurred by reason of such termination, and any other adjustments otherwise allowed by the Contract. Any adjustment to the Contract Sum made pursuant to this Section 14.4 shall be made in accordance with the requirements of Article 7.3.3.

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**3.123** *Add the following Sections 14.4.4, 14.4.5, and 14.5:*

**14.4.4** Contractor's failure to include an appropriate termination for convenience clause in any subcontract shall not (i) affect the Owner's right to require the termination of a subcontract, or (ii) increase the obligation of the Owner beyond what it would have been if the subcontract had contained an appropriate clause.

**14.4.5** Upon written consent of the Contractor, the Owner may reinstate the terminated portion of this Contract in whole or in part by amending the notice of termination if it has been determined that:

- .1** the termination was due to withdrawal of funding by the General Assembly, Governor, or State Fiscal Accountability Authority or the need to divert project funds to respond to an emergency as defined by Regulation 19-445.2110(B) of the South Carolina Code of Regulations, as amended;
- .2** funding for the reinstated portion of the work has been restored;
- .3** circumstances clearly indicate a requirement for the terminated work; and
- .4** reinstatement of the terminated work is advantageous to the Owner.

**14.5 CANCELLATION AFTER AWARD BUT PRIOR TO PERFORMANCE**

Pursuant to Title 11, Chapter 35 and Regulation 19-445.2085 of the South Carolina Code of Laws and Regulations, as amended, this contract may be canceled after award but prior to performance.

**3.124** *Insert the following sentence after the second sentence of Section 15.1.1:*

A voucher, invoice, payment application or other routine request for payment that is not in dispute when submitted is not a Claim under this definition.

**3.125** *Delete Section 15.1.2 and substitute the following:*

**15.1.2 NOTICE OF CLAIMS**

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Architect. Such notice shall include sufficient information to advise the Architect and other party of the circumstances giving rise to the claim, the specific contractual adjustment or relief requested and the basis of such request. Claims by either party arising prior to the date final payment is due must 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 except as stated for adverse weather days in Section 15.1.5.2. By failing to give written notice of a Claim within the time required by this Section, a party expressly waives its claim.

**3.126** *Delete Section 15.1.3 and substitute the following:*

**15.1.3 CONTINUING CONTRACT PERFORMANCE**

Pending final resolution of a Claim, including any administrative review allowed under Section 15.6, 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. The Architect will issue Certificates for Payment in accordance with the initial decisions and determinations of the Architect.

**3.127** *Insert the following at the end of Section 15.1.5.1:*

Claims for an increase in the Contract Time shall be based on one additional calendar day for each full calendar day that the Contractor is prevented from working.

**3.128** *Insert the following Sub-Sections at the end of Section 15.1.5.2:*

- .1** Claims for adverse weather shall be based on actual weather conditions at the job site or other place of performance of the Work, as documented in the Contractor's job site log.
- .2** For the purpose of this Contract, a total of five (5) days per calendar month (non-cumulative) shall be anticipated as "adverse weather" at the job site, and such time will not be considered justification for an extension of time. If, in any month, adverse weather develops beyond the five (5) days, the Contractor shall be allowed to claim additional days to compensate for the excess weather delays only to the extent of the impact on the approved construction schedule and days the contractor was already scheduled to work. The remedy for this condition is for an extension of time only and is exclusive of all other rights and remedies available under the Contract Documents or imposed or available by law.
- .3** The Contractor shall submit monthly with their pay application all claims for adverse weather conditions that occurred during the previous month. The Architect shall review each monthly submittal in accordance with Section 15.5 and inform the Contractor and the Owner promptly of its evaluation. Approved days shall be included in the next Change Order issued by the Architect. Adverse weather conditions not claimed within the time limits of this Subparagraph shall be considered to be waived by the Contractor. Claims will not be allowed for adverse weather days that occur after the scheduled (original or adjusted) date of Substantial Completion.

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**3.129** *Delete Section 15.1.6 and substitute the following:*

#### **15.1.6 CLAIMS FOR LISTED DAMAGES**

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor and Owner waive Claims against each other for listed damages arising out of or relating to this Contract.

**15.1.6.1** For the Owner, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) costs suffered by a third party unable to commence work, (vi) attorney's fees, (vii) any interest, except to the extent allowed by Section 13.6 (Interest), (viii) lost revenue and profit for lost use of the property, (ix) costs resulting from lost productivity or efficiency.

**15.1.6.2** For the Contractor, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest, except to the extent allowed by Section 13.6 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waive as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14.

**15.1.6.3** Nothing contained in this Section shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

**3.130** *Add the following Section 15.1.7:*

#### **15.1.7 WAIVER OF CLAIMS AGAINST THE ARCHITECT**

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor waives all claims against the Architect and any other design professionals who provide design and/or project management services to the Owner, either directly or as independent contractors or subcontractors to the Architect, for listed damages arising out of or relating to this Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waive as against the Owner. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

**3.131** *Delete the language of Sections 15.2, 15.3, and 15.4, including all Sub-Sections, and substitute the word "Reserved" for the deleted language of each Section and Sub-Section.*

**3.132** *Add the following Sections 15.5 and 15.6 with their sub-sections:*

#### **15.5 CLAIM AND DISPUTES - DUTY OF COOPERATION, NOTICE, AND ARCHITECTS INITIAL DECISION**

**15.5.1** Contractor and Owner are fully committed to working with each other throughout the Project to avoid or minimize claims. To further this goal, Contractor and Owner agree to communicate regularly with each other and the Architect at all times notifying one another as soon as reasonably possible of any issue that if not addressed may cause loss, delay, and/or disruption of the Work. If claims do arise, Contractor and Owner each commit to resolving such claims in an amicable, professional, and expeditious manner to avoid unnecessary losses, delays, and disruptions to the Work.

**15.5.2** Claims shall first be referred to the Architect for initial decision. An initial decision shall be required as a condition precedent to resolution pursuant to Section 15.6 of any Claim arising prior to the date of final payment, unless 30 days have passed after the Claim has been referred to the Architect with no decision having been rendered, or after all the Architect's requests for additional supporting data have been answered, whichever is later. The Architect will not address claims between the Contractor and persons or entities other than the Owner.

**15.5.3** The Architect will review Claims and within ten days of the receipt of a Claim (1) request additional supporting data from the claimant or a response with supporting data from the other party or (2) render an initial decision in accordance with Section 15.5.5.

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- 15.5.4** If the Architect 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 such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Architect when the response or supporting data will be furnished or (3) advise the Architect that all supporting data has already been provided. Upon receipt of the response or supporting data, the Architect will render an initial decision in accordance with Section 15.5.5.
- 15.5.5** The Architect will render an initial decision in writing; (1) stating the reasons therefor; and (2) notifying the parties of any change in the Contract Sum or Contract Time or both. The Architect will deliver the initial decision to the parties within two weeks of receipt of any response or supporting data requested pursuant to Section 16.4 or within such longer period as may be mutually agreeable to the parties. If the parties accept the initial decision, the Architect shall prepare a Change Order with appropriate supporting documentation for the review and approval of the parties and the Office of State Engineer. If either the Contractor, Owner, or both, disagree with the initial decision, the Contractor and Owner shall proceed with dispute resolution in accordance with the provisions of Section 15.6.
- 15.5.6** 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.

#### **15.6 DISPUTE RESOLUTION**

- 15.6.1** If a claim is not resolved pursuant to Section 15.5 to the satisfaction of either party, both parties shall attempt to resolve the dispute at the field level through discussions between Contractor's Representative and Owner's Representative. If a dispute cannot be resolved through Contractor's Representative and Owner's Representative, then the Contractor's Senior Representative and the Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than twenty-one days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.
- 15.6.2** If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina's Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all claims, claims, or controversies relating to the Contract shall be resolved exclusively by the appropriate Chief Procurement Officer in accordance with Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws, or in the absence of jurisdiction, only in the Court of Common Pleas for, or in the absence of jurisdiction a federal court located in, Richland County, State of South Carolina. Contractor agrees that any act by the State regarding the Contract is not a waiver of either the State's sovereign immunity or the State's immunity under the Eleventh Amendment of the United State's Constitution.
- 15.6.3** If any party seeks resolution to a dispute pursuant to Section 15.6.2, the parties shall participate in non-binding mediation to resolve the claim. If the claim is governed by Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws as amended and the amount in controversy is \$100,000.00 or less, the CPOC shall appoint a mediator, otherwise, the mediation shall be conducted by an impartial mediator selected by mutual agreement of the parties, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator.
- 15.6.4** Without relieving any party from the other requirements of Sections 15.5 and 15.6, either party may initiate proceedings in the appropriate forum prior to initiating or completing the procedures required by Sections 15.5 and 15.6 if such action is necessary to preserve a claim by avoiding the application of any applicable statutory period of limitation or repose.

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### 15.6.5 SERVICE OF PROCESS

Contractor consents that any papers, notices, or process necessary or proper for the initiation or continuation of any claims, claims, or controversies relating to the Contract; for any court action in connection therewith; or for the entry of judgment on any award made, may be served on Contractor by certified mail (return receipt requested) addressed to Contractor at the address provided for the Contractor's Senior Representative or by personal service or by any other manner that is permitted by law, in or outside South Carolina. Notice by certified mail is deemed duly given upon deposit in the United States mail.

### 3.133 Add the following Article 16:

#### ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

##### 16.1. Inspection Requirements: *(Indicate the inspection services required by the Contract)*

- Special Inspections are required and are not part of the Contract Sum. *(see section 01400)*
- Building Inspections are required and are not part of the Contract Sum. *(see section 01400)*

The inspections required for this Work are:

*(Indicate which services are required and the provider)*

- Civil: \_\_\_\_\_
- Structural: \_\_\_\_\_
- Mechanical: \_\_\_\_\_
- Plumbing: \_\_\_\_\_
- Electrical: \_\_\_\_\_
- Gas: \_\_\_\_\_
- Other *(list)*: \_\_\_\_\_

Remarks: \_\_\_\_\_

**16.1.1** Contractor shall schedule and request inspections in an orderly and efficient manner and shall notify the Owner whenever the Contractor schedules an inspection in accordance with the requirements of Section 16.1. Contractor shall be responsible for the cost of inspections scheduled and conducted without the Owner's knowledge and for any increase in the cost of inspections resulting from the inefficient scheduling of inspections.

**16.2** List Cash Allowances, if any. *(Refer to attachments as needed. If none, enter NONE)*

NONE

**16.3.** Requirements for Record Drawings, if any. *(Refer to attachments as needed. If none, enter NONE)*

Refer to section 23 00 00 Mechanical; General in the technical specifications.

**16.4.** Requirements for Shop Drawings and other submittals, if any, including number, procedure for submission, list of materials to be submitted, etc. *(Refer to attachments as needed. If none, enter NONE)*

Refer to section 23 00 00 Mechanical; General in the technical specifications.

**16.5.** Requirements for signage, on-site office or trailer, utilities, restrooms, etc., in addition to the Contract, if any. *(Refer to attachments as needed. If none, enter NONE)*

Refer to section 23 00 00 Mechanical; General in the technical specifications.

**16.6.** Requirements for Project Cleanup in addition to the Contract, if any. *(Refer to attachments as needed. If none, enter NONE)*

Refer to section 23 00 00 Mechanical; General in the technical specifications.

**16.7.** List all attachments that modify these General Conditions. *(If none, enter NONE)*

NONE



## USC SUPPLEMENTAL GENERAL CONDITIONS FOR CONSTRUCTION PROJECTS

### WORK AREAS

1. The Contractor shall maintain the job site in a safe manner at all times. This includes (but is not limited to) the provision and/or maintenance of lighting, fencing, barricades around obstructions, and safety and directional signage.
2. Contractor's employees shall take all reasonable means not to interrupt the flow of student traffic in building corridors, lobbies, stairs and exterior walks. All necessary and reasonable safety precautions shall be taken to prevent injury to building occupants while transporting materials and equipment through the work area. Providing safe, accessible, plywood-shielded pedestrian ways around construction may be required if a suitable alternative route is not available.
3. At the beginning of the project, the USC Project Manager will establish the Contractor's lay-down area. This area will also be used for the Contractor's work vehicles. The lay-down area will be clearly identified to the contractor by the Project Manager, with a sketch or drawing provided to USC Parking Services. In turn, Parking Services will mark off this area with a sign containing the project name, Project Manager's name, Contractor name and contact number, and end date. Where this area is subject to foot traffic, protective barriers will be provided as specified by the Project Manager. The area will be maintained in a neat and orderly fashion.
4. Work vehicles parked in the lay down area (or designated parking areas) will be clearly marked and display a USC-furnished placard for identification. No personal vehicles will be allowed in this area, or in any areas surrounding the construction site. Personal vehicles must be parked in the perimeter parking lots or garages. Temporary parking permits can be obtained at the Contractor's expense at the USC Parking Office located in the Pendleton Street parking garage. Refer to the CAMPUS VEHICLE EXPECTATIONS (below) for additional information.
5. Contractor is responsible for removal of all debris from the site, and is required to provide the necessary dumpsters which will be emptied on a regular basis. Construction waste must not be placed in University dumpsters. The construction site must be thoroughly cleaned with all trash picked up and properly disposed of on a daily basis and the site must be left in a safe and sanitary condition each day. The University will inspect job sites regularly and will fine any contractor found to be in violation of this requirement an amount of up to \$1,000 per violation.
6. The Contractor shall be responsible for erosion and sediment control measures where ground disturbances are made.

### PROJECT FENCING

7. All construction projects with exterior impacts shall have construction fencing at the perimeter. Fencing shall be 6' chain link with black or green privacy fabric (80-90% blockage). For fence panels with footed stands, sandbag weights shall be placed on the inside of the fence. Ripped sandbags shall be replaced immediately.
8. For projects with long fencing runs and/or high profile locations, decorative USC banners shall be used on top of privacy fabric; banners should be used at a ratio of one banner for every five fence panels. USC Project Manager will make arrangements for banner delivery for Contractor to hang.
9. The use of plastic safety fencing is discouraged and shall only be used on a temporary basis (less than four weeks) where absolutely necessary. Safety fencing shall be a neon yellow-green, high-

visibility fencing equal to 'Kryptonight' by Tenax. Safety fencing shall be erected and maintained in a neat and orderly fashion throughout the project.

10. Vehicles and all other equipment shall be contained within a fenced area if they are on site for more than 3 consecutive calendar days.

#### BEHAVIOR

11. Fraternalization between Contractor's employees and USC students, faculty or staff is strictly prohibited.
12. USC will not tolerate rude, abusive or degrading behavior on the job site. Heckling and cat-calling directed toward students, faculty or staff or any other person on USC property is strictly prohibited. Any contractor whose employees violate this requirement will be assessed a fine of up to \$500 per violation.
13. Contractor's employees must adhere to the University's policy of maintaining a drug-free and tobacco-free campus.

#### HAZARDOUS MATERIALS & SAFETY COMPLIANCE

14. A USC Permit to Work must be signed prior to any work being performed by the general contractor or sub-contractor(s).
15. The contractor will comply with all regulations set forth by OSHA and SCDHEC. Contractor must also adhere to USC's internal policies and procedures (available by request). Upon request, the contractor will submit all Safety Programs and Certificates of Insurance to the University for review.
16. Contractor must notify the University immediately upon the discovery of suspect material which may contain asbestos or other such hazardous materials. These materials must not be disturbed until approved by the USC Project Manager.
17. In the event of an OSHA inspection, the Contractor shall immediately call the Facilities Call Center, 803-777-4217, and report that an OSHA inspector is on site. An employee from USC's Safety Unit will arrive to assist in the inspection.

#### LANDSCAPE & TREE PROTECTION

18. In conjunction with the construction documents, the USC Arborist shall direct methods to minimize damage to campus trees. Tree protection fencing is required to protect existing trees and other landscape features to be affected by a construction project. The location of this fence will be evaluated for each situation with the USC Arborist, Landscape Architect and Project Manager. Tree protection fencing may be required along access routes as well as within the project area itself. Fence locations may have to be reset throughout the course of the project.
19. The tree protection fence shall be 6' high chain link fence with 80-90% privacy screening unless otherwise approved by USC Arborist and/or Landscape Architect. If the tree protection fence is completely within a screened jobsite fence perimeter, privacy fabric is not required. In-ground fence posts are preferred in most situations for greater protection. If utility or pavement conflicts are present, fence panels in footed stands are acceptable. See attached detail for typical tree protection fencing.
20. No entry, vehicle parking, or materials storage will be allowed inside the tree protection zone. A 4"

layer of mulch shall be placed over the tree protection area to maintain moisture in the root zone.

21. Where it is necessary to cross walks, tree root zones (i.e., under canopy) or lawns the following protective measures shall be taken:
  - a. For single loads up to 9,000 lbs., a 3/4" minimum plywood base shall be placed over 4" of mulch.
  - b. For single loads over 9,000 lbs., two layers of 3/4" plywood shall be placed over 4" of mulch.
  - c. Plywood sheets shall be replaced as they deteriorate or delaminate with exposure.
  - d. For projects requiring heavier loads, a construction entry road consisting of 10' X 16' oak logging mats on 12" coarse, chipped, hardwood base. Mulch and logging mats shall be supplemented throughout the project to keep matting structurally functional.
22. Damage to any trees during construction shall be assessed by the USC Arborist, who will stipulate what action will be taken for remediation of damage. The cost of any and all remediation will be assumed by the contractor at no additional cost to the project. Compensation for damages may be assessed up to \$500 per caliper inch of tree (up to 8") and \$500 per inch of diameter at breast height (for trees over 8").
23. Damage to trunks and limbs, as well as disturbance of the root zone under the dripline of tree, including compaction of soil, cutting or filling, or storage of materials, shall qualify as damage and subject to remediation.
24. Any damage to existing pavements or landscaping (including lawn areas and irrigation) will be remediated before final payment is made.

#### TEMPORARY FACILITIES

25. Contractor will be responsible for providing its own temporary toilet facilities, unless prior arrangements are made with the USC Project Manager.
26. Use of USC communications facilities (telephones, computers, etc.) by the Contractor is prohibited, unless prior arrangements are made with the USC Project Manager.

#### CAMPUS KEYS

27. Contractor must sign a Contractor Key Receipt/Return form before any keys are issued. Keys must be returned immediately upon the completion of the work. The Contractor will bear the cost of any re-keying necessary due to the loss of or failure to return keys.

#### WELDING

28. A welding (hot work) permit must be issued by the University Fire Marshall before any welding can begin inside a building. The USC Project Manager will coordinate.

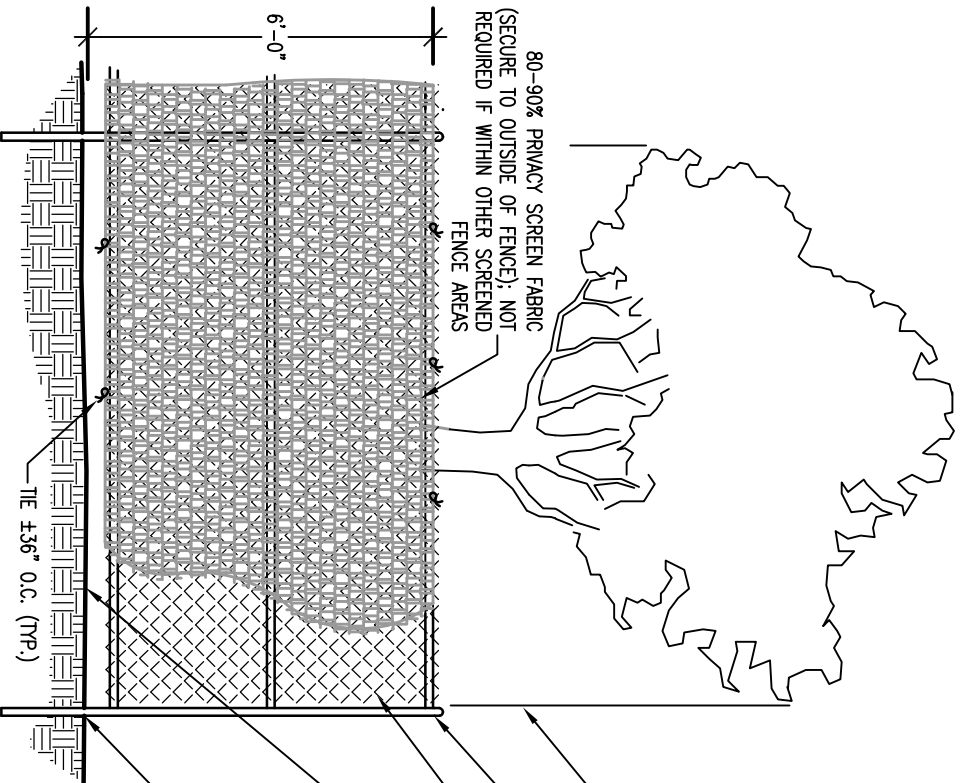
#### PROJECT EVALUATION & CLOSE-OUT

29. For all projects over \$100,000, including IDCs, a Contractor Performance Evaluation (SE 397) will be reviewed with the GC at the beginning of the project and a copy given to the GC. At the end of the project the form will be completed by the USC Project Manager and a Construction Performance rating will be established.
30. Contractor must provide all O&M manuals, as-built drawings, and training of USC personnel on new equipment, controls, etc. prior to Substantial Completion. Final payment will not be made until

this is completed.

#### CAMPUS VEHICLE EXPECTATIONS

31. Personal vehicles must be parked in the perimeter parking lots or garages. Temporary parking permits can be obtained at the Contractor's expense at the USC Parking Office located in the Pendleton Street parking garage.
32. All motorized vehicle traffic on USC walkways and landscape areas must be approved by the USC Project Manager and Parking Division, have a USC parking placard, and be parked within the approved laydown area. Violators may be subject to ticketing, towing and fines.
33. All motorized vehicles that leak or drip liquids are prohibited from traveling or parking on walks or landscaped areas.
34. Drivers of equipment or motor vehicles that damage university hardscape or landscape will be held responsible for damages and restoration expense.
35. All vehicles parked on landscape, hardscape, or in the process of service delivery, must display adequate safety devices, i.e. flashing lights, cones, signage, etc.
36. All drivers of equipment and vehicles shall be respectful of University landscape, equipment, structures, fixtures and signage.
37. All incidents of property damage shall be reported to Parking Services or the Work Management Center.



TREE CANOPY DRIPLINE:  
SEE NOTE #2.

2½" O.D. GALV. FENCEPOST

CHAIN LINK FENCE PANEL

PROVIDE 4" HARDWOOD MULCH AT TREE PROTECTION AREA UPON RECOMMENDATION OF USC ARBORIST

FENCE POSTS TO BE SET INTO GROUND; MARK POST LOCATIONS FOR REVIEW AND APPROVAL BY USC ARBORIST PRIOR TO INSTALLATION. SEE NOTE #4.

NOTES:

1. PROVIDE PROTECTION FENCING FOR ALL TREES WITHIN AREA OF DISTURBANCE AND CONSTRUCTION ACCESS.
2. PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
3. PROTECTION FENCING TO BE PLACED AT THE OUTSIDE OF THE CANOPY DRIPLINE, OR AT A DISTANCE OF ONE FOOT PER ONE INCH OF TREE DIAMETER, MEASURED AT BREAST HEIGHT, WHICHEVER IS LARGER, UNLESS OTHERWISE INDICATED ON LANDSCAPE PLAN OR APPROVED BY UNIVERSITY ARBORIST.
4. IN-GROUND POSTS ARE STANDARD. IF EXISTING ROOTS, UTILITIES OR PAVEMENT PRECLUDE USE OF IN-GROUND POSTS, FOOTED STANDS ARE ACCEPTABLE. SAND BAGS SHALL BE PLACED ON THE INSIDE OF FENCE.
5. DAMAGE TO ANY TREES DURING CONSTRUCTION SHALL BE ASSESSED BY UNIVERSITY ARBORIST AND THE UNIVERSITY ARBORIST SHALL STIPULATE WHAT ACTION WILL BE TAKEN FOR REMEDIATION OF DAMAGE. THE COST OF ANY AND ALL REMEDIATION WILL BE ASSUMED BY CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
6. DISTURBANCE OF ROOT ZONE UNDER DRIPLINE OF TREE, INCLUDING COMPACTION OF SOIL, CUTTING OR FILLING OR STORAGE OF MATERIALS SHALL QUALIFY AS DAMAGE AND SUBJECT TO REMEDIATION.

TREE PROTECTION FENCING (IN-GROUND) WITH SCREENING

NO SCALE REVISED 8.28.14

## **CAMPUS VEHICLE EXPECTATIONS**

1. All motorized vehicles on the University campus are expected to travel and park on roadways and/or in parking stalls.
2. All motorized vehicle traffic on USC walkways must first receive the Landscape Manager=s authorization. Violators may be subject to fines and penalties.
3. All motorized vehicles that leak or drip liquids are prohibited from traveling or parking on walks or landscaped areas.
4. Contractors, vendors, and delivery personnel are required to obtain prior parking authorization before parking in a designated space. Violators may be subject to fines and/or penalties. See Item 10 below.
5. Drivers of equipment or motor vehicles that damage university hardscape or landscape will be held personally responsible for damages and restoration expense.
6. Vehicle drivers who park on landscape or drives must be able to produce written evidence of need or emergency requiring parking on same.
7. All vehicles parked on landscape, hardscape, or in the process of service delivery, must display adequate safety devices, i.e. flashing lights, cones, signage, etc.
8. All drivers of equipment and vehicles will be respectful of University landscape, equipment, structures, fixtures and signage.
9. All incidents of property damage will be reported to Parking Services or the Work Management Center.
10. Parking on campus is restricted to spaces designated by Parking Services at the beginning of the project. Once the project manager and contractor agree on how many spaces are needed, the project manager will obtain a placard for each vehicle. This placard must be hung from the mirror of the vehicle, otherwise a ticket will be issued and these tickets cannot be “fixed”. Parking spaces are restricted to work vehicles only; no personal vehicles.

Project Name: Close Building AHU Upgrades

Project Number: H27-6117 / 50002911-2

University of South Carolina

**CONTRACTOR'S ONE YEAR GUARANTEE**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

WE \_\_\_\_\_  
as General Contractor on the above-named project, do hereby guarantee that all work executed under the requirements of the Contract Documents shall be free from defects due to faulty materials and/or workmanship for a period of one (1) year from date of acceptance of the work by the Owner and/or Architect/Engineer; and hereby agree to remedy defects due to faulty materials and/or workmanship, and pay for any damage resulting wherefrom, at no cost to the Owner, provided; however, that the following are excluded from this guarantee;

Defects or failures resulting from abuse by Owner.

Damage caused by fire, tornado, hail, hurricane, acts of God, wars, riots, or civil commotion.

\_\_\_\_\_  
(Name of Contracting Firm)

\* By \_\_\_\_\_

Title \_\_\_\_\_

\* Must be executed by an office of the Contracting Firm.

SWORN TO before me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ (seal)

\_\_\_\_\_ State

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

**SE-355**  
**PERFORMANCE BOND**

**KNOW ALL MEN BY THESE PRESENTS**, that *(Insert full name or legal title and address of Contractor)*

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

hereinafter referred to as "Contractor", and *(Insert full name and address of principal place of business of Surety)*

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

hereinafter called the "surety", are jointly and severally held and firmly bound unto *(Insert full name and address of Agency)*

Name: University of South Carolina  
Address: 743 Greene Street  
Columbia, SC 29208

hereinafter referred to as "Agency", or its successors or assigns, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Agency to construct

State Project Name: Close Building AHU Upgrades  
State Project Number: H27-6117 / 50002911-2

Brief Description of Awarded Work, as found on the SE-330 or SE-332, Bid Form: Provide labor and materials as detailed in the construction documents for the installation of new chilled water cooling coils and new access to the (2) penthouse airhandlers on the Close-Hipp building. Small and Minority participation is encouraged. It is the contractor's responsibility to obtain all bidding documents from the purchasing website.

in accordance with Drawings and Specifications prepared by *(Insert full name and address of A/E)*

Name: Mechanical Design Inc.  
Address: 4403 Broad River Rd.  
Columbia, SC 29210

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

**IN WITNESS WHEREOF**, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

**DATED this** \_\_\_\_\_ **day of** \_\_\_\_\_, **2**  
*(shall be no earlier than Date of Contract)*

**BOND NUMBER** \_\_\_\_\_

**CONTRACTOR**

**SURETY**

**By:** \_\_\_\_\_  
(Seal)

**By:** \_\_\_\_\_  
(Seal)

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

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

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

**Print Title:** \_\_\_\_\_  
*(Attach Power of Attorney)*

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

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

*(Additional Signatures, if any, appear on attached page)*



## SE-355

# **PERFORMANCE BOND**

### **NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference.
2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.
3. The Surety's obligation under this Bond shall arise after:
  - 3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or
  - 3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.
4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
  - 4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or
  - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or
  - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
    - 4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or
    - 4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:
  - 5.1 Surety in accordance with the terms of the Contract; or
  - 5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
  - 5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.
  - 6.1 If the Surety proceeds as provided in paragraph 4.4 and the Agency refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Agency shall be entitled to enforce any remedy available to the Agency.
  - 6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
  7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:
    - 7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and
    - 7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
    - 7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
    - 7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
  8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.
  9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
  10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.
  11. Definitions
    - 11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
    - 11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.

# SE-357 LABOR & MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that *(Insert full name or legal title and address of Contractor)*

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

hereinafter referred to as "Contractor", and *(Insert full name and address of principal place of business of Surety)*

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

hereinafter called the "surety", are jointly and severally held and firmly bound unto *(Insert full name and address of Agency)*

Name: University of South Carolina  
Address: 743 Greene Street  
Columbia, SC 29208

hereinafter referred to as "Agency", or its successors or assigns, the sum of \_\_\_\_\_ (\$ \_\_\_\_\_), being the sum of the Bond to which payment to be well and truly made, the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, Contractor has by written agreement dated \_\_\_\_\_ entered into a contract with Agency to construct

State Project Name: Close Building AHU Upgrades  
State Project Number: H27-6117 / 50002911-2

Brief Description of Awarded Work, as found on the SE-330 or SE-332, Bid Form: Provide labor and materials as detailed in the construction documents for the installation of new chilled water cooling coils and new access to the (2) penthouse airhandlers on the Close-Hipp building. Small and Minority participation is encouraged.

in accordance with Drawings and Specifications prepared by *(Insert full name and address of A/E)*

Name: Mechanical Design Inc.  
Address: 4403 Broad River Rd.  
Columbia, SC 29210

which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract.

**IN WITNESS WHEREOF**, Surety and Contractor, intending to be legally bound hereby, subject to the terms stated herein, do each cause this Labor & Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

**DATED this** \_\_\_\_\_ **day of** \_\_\_\_\_, **2**  
*(shall be no earlier than Date of Contract)*

**BOND NUMBER** \_\_\_\_\_

**CONTRACTOR**

**SURETY**

**By:** \_\_\_\_\_  
**(Seal)**

**By:** \_\_\_\_\_  
**(Seal)**

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

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

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

**Print Title:** \_\_\_\_\_  
*(Attach Power of Attorney)*

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

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

*(Additional Signatures, if any, appear on attached page)*

**SE-357**

**LABOR & MATERIAL PAYMENT BOND**

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**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
  2. With respect to the Agency, this obligation shall be null and void if the Contractor:
    - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
    - 2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
  3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
  4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
    - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
    - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
    - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
  5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
    - 5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
    - 5.2 Pay or arrange for payment of any undisputed amounts.
    - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
  6. Amounts owed by the Agency to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency's prior right to use the funds for the completion of the Work.
  7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
  8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
  9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
  10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
  11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
  12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.
- 13. DEFINITIONS**
- 13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.
  - 13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
  - 13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

SE-380

CHANGE ORDER NO.: \_\_\_\_\_

**CHANGE ORDER TO CONSTRUCTION CONTRACT**

AGENCY: University of South Carolina

PROJECT NAME: Close Building AHU Upgrades

PROJECT NUMBER: H27-6117 / 50002911-2

CONTRACTOR: \_\_\_\_\_ CONTRACT DATE: \_\_\_\_\_

This Contract is changed as follows: *(Insert description of change in space provided below)*

**ADJUSTMENTS IN THE CONTRACT SUM:**

1. Original Contract Sum:		\$
2. Change in Contract Sum by previously approved Change Orders:		
3. Contract Sum prior to this Change Order		\$ 0.00
4. Amount of this Change Order:		
5. New Contract Sum, including this Change Order:		\$ 0.00

**ADJUSTMENTS IN THE CONTRACT TIME:**

1. Original Substantial Completion Date:		
2. Sum of previously approved increases and decreases in Days:		Days
3. Change in Days for this Change Order		Days
4. New Substantial Completion Date:		

**CONTRACTOR ACCEPTANCE:**

BY: \_\_\_\_\_ Date: \_\_\_\_\_  
*(Signature of Representative)*

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

**A/E RECOMMENDATION FOR ACCEPTANCE:**

BY: \_\_\_\_\_ Date: \_\_\_\_\_  
*(Signature of Representative)*

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

**AGENCY ACCEPTANCE AND CERTIFICATION:**

BY: \_\_\_\_\_ Date: \_\_\_\_\_  
*(Signature of Representative)*

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

- Change is within Agency Construction Contract Change Order Certification of: \$ \_\_\_\_\_
- Change is not within Agency Construction Contract Change Order Certification of: \$ \_\_\_\_\_

**Office of the State Engineer Authorization for change exceeding Agency Construction Contract Change Order Certification:**

AUTHORIZED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
*(OSE Project Manager)*

# Substitution Request Transmittal

To: Mechanical Design, Inc.  
4403 Broad River Road  
Columbia, SC 29210  
justin@mdi9834.com  
T: 803-731-9834 F: 803-731-9837

Project: University of South Carolina  
USC DM - Close Building AHU Upgrades  
Project Number: H27-6117 / 50002911-2  
Architect/Engineer Project Number: 163290

Specific Item: \_\_\_\_\_

Section No(s).	Section Title(s)	Paragraph(s)	Description
_____	_____	_____	_____
_____	_____	_____	_____

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

**Individual item(s) are listed by comparison on attached/enclosed sheet.**

The undersigned has included herewith information on which is clearly identified product descriptions, specifications, catalog cuts, performance and test data, and other information required for an adequate evaluation of the request by the Architect including a description of any changes to Contract Documents which the proposed substitution will require for proper installation.

The undersigned certifies that the proposed substitution meets or exceeds the quality level of the specified product, provides a warranty equal to or greater than that of the specified product and that the maintenance and installation costs are the same or less than that of the specified product.

The undersigned agrees to coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional costs to the Owner, waives claims for additional costs or time extensions which may subsequently become apparent and will reimburse Owner for review or redesign services associated with re-approval by authorities.

The difference(s) between the specified item and Proposed Substitution are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Submitted by: \_\_\_\_\_ Date: \_\_\_\_\_

.....  
For Use By Architect

The above proposed substitution is:

- Accepted
- Rejected - Not Equal to the Specified Item
- Rejected - Received After Substitution Submittal Deadline
- Rejected - Insufficient Information for Proper Review

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

USC DM - Close Building AHU Upgrades  
H27-6117 / 50002911-2

WE \_\_\_\_\_  
as General Contractor on the above-named project, do hereby guarantee that all work executed under the requirements of the Contract Documents shall be free from defects due to faulty materials and/or workmanship for a period of one (1) year from date of acceptance of the work by the Owner and/or Architect/Engineer; and hereby agree to remedy defects due to faulty materials and/or workmanship, and pay for any damage resulting wherefrom, at no cost to the Owner, provided; however, that the following are excluded from this guarantee;

Defects or failures resulting from abuse by Owner.

Damage caused by fire, tornado, hail, hurricane, acts of God, wars, riots, or civil commotion.

\_\_\_\_\_  
(Name of Contracting Firm)

\* By \_\_\_\_\_

Title \_\_\_\_\_

\* Must be executed by an office of the Contracting Firm.

SWORN TO before me this

\_\_\_\_\_ day of \_\_\_\_\_, 2\_\_\_\_ (seal)

\_\_\_\_\_ State

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

**SECTION 01 30 00**

**ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Change Order Documentation.
- D. Project Record Documents.
- E. Coordination drawings.
- F. Submittals for review, information, and project closeout.
- G. Submittal procedures.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRECONSTRUCTION MEETING**

- A. University of South Carolina will schedule a meeting after Notice of Award.
  - 1. Meeting to take place not later than 15 days following the execution of the Agreement.
- B. Attendance Required:
  - 1. Owner.
  - 2. Electrical Engineer.
  - 3. Architect.
  - 4. Contractor.
  - 5. Sub-Contractor.
- C. Agenda:
  - 1. Project organizational structure and chain of command.
  - 2. Duties and expectation of the Owner, Architect, Engineer, and Contractor.
  - 3. Execution of University of South Carolina-Contractor Agreement.
  - 4. Submission of executed bonds and insurance certificates.
  - 5. Contract disputes, mediation, partnering, and resolution.
  - 6. Distribution of Contract Documents.
  - 7. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
  - 8. Designation of personnel representing the parties to Contract, Owner, Contractor, Electrical Engineer and Architect.
  - 9. Work schedule, normal working hours, and normal working week. Also to include required note for scheduling overtime, outages, and interruptions.
  - 10. Safety procedures.
  - 11. Temporary and permanent utilities.
  - 12. Security, keys, fencing, site access, and limited access to certain areas.
  - 13. Designated parking and delivery areas.
  - 14. Designated storage areas, bonded storage, and security.
  - 15. Designated toilets, break areas, vending areas, and smoking areas.
  - 16. Daily cleanup, trash removal, dumpsters and trash areas.

17. Procedures and responsibilities for testing and inspecting, required permits, and licenses.
  18. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  19. Demolition items to be salvaged for Owner, notification, and storage area.
  20. Preparation of Record Documents, and operating and maintenance manuals.
  21. Instruction and training of Owner's maintenance personnel.
  22. Warranties, manufacturer startup, prior to substantial completion.
  23. Final completion inspection and punch list.
  24. One-year warranty inspection (Engineer to inspect 10 month after substantial completion.)
  25. Contractor corrections for items found during the warranty inspection.
- D. Record minutes and distribute copies within three days after meeting to participants, with copies to Electrical Engineer, Architect, Owner, participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, University of South Carolina Project manager, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meetings.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Review of off-site fabrication and delivery schedules.
  7. Maintenance of progress schedule.
  8. Corrective measures to regain projected schedules.
  9. Planned progress during succeeding work period.
  10. Coordination of projected progress.
  11. Maintenance of quality and work standards.
  12. Effect of proposed changes on progress schedule and coordination.
  13. Other business relating to Work.
- E. Record minutes and distribute copies within three days after meeting to participants, with copies to Engineer, Architect, University of South Carolina Project Manager, participants, and those affected by decisions made.

### **3.03 CHANGE ORDER DOCUMENTATION**

- A. Submittals for all change orders shall be documented using the procedures outlined in the contract.

### **3.04 PROJECT RECORD DOCUMENTS**

- A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and Shop Drawings. Mark prints to show actual installation where installation varies from that shown originally.



- B.
  - 1. Cross reference changes on Contract Drawings and Shop Drawings, noting construction change directive numbers, change order numbers, and similar identification where applicable.
  - 2. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 3. Organize into unbound sets. Place record prints in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
- C. Record Specifications: Mark Specifications to indicate actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- D. Record Product Data: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

### **3.05 COORDINATION DRAWINGS**

- A. Provide information required by Project Coordinator for preparation of coordination drawings.
- B. Review drawings prior to submission to Engineer.

### **3.06 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product data.
  - 2. Shop drawings.
  - 3. Samples for selection.
  - 4. Samples for verification.
- B. Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - CLOSEOUT SUBMITTALS.

### **3.07 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Engineer's knowledge as contract administrator or for University of South Carolina. No action will be taken.

### **3.08 SUBMITTALS FOR PROJECT CLOSEOUT**

- A. When the following are specified in individual sections, submit them at project closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- B. Submit for University of South Carolina's benefit during and after project completion.

### **3.09 NUMBER OF COPIES OF SUBMITTALS**

- A. Documents for Review:
  - 1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies that Contractor requires, plus two copies that will be retained by Engineer.
- B. Documents for Information: Submit two copies.
- C. Samples: Submit the number specified in individual specification sections; one of which will be retained by Engineer.
  - 1. After review, produce duplicates.
  - 2. Retained samples will not be returned to Contractor unless specifically so stated.

### **3.10 SUBMITTAL PROCEDURES**

- A. Transmit each submittal with approved form.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Deliver submittals to Construction Manager at business address.
- F. Schedule submittals to expedite the Project, and coordinate submission of related items.
- G. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- H. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- I. Provide space for Contractor and Engineer review stamps.
- J. When revised for resubmission, identify all changes made since previous submission.
- K. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- L. Submittals not requested will not be recognized or processed.

**END OF SECTION**

**SECTION 01 32 16**

**CONSTRUCTION PROGRESS SCHEDULE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

**1.02 SUBMITTALS**

- A. Within 10 days after date of Agreement, submit four copies of preliminary schedule.
- B. If preliminary schedule requires revision after review, submit four copies of revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit four copies of draft of proposed complete schedule for review.
- D. Within 10 days after joint review, submit four copies of complete schedule. Submittal and approval of Project Schedule is a condition precedent to the Payment of progress payments. Therefore, no construction work will be permitted and no progress payments will be made until Project Schedule has been approved by the Owner's Representative.
- E. Submit updated schedule with each Application for Payment.
- F. Daily Construction Report: Submit 1 bound copy with project record documents at end of construction.
- G. Field Condition Reports: Submit 4 copies at time of discovery of differing conditions.

**1.03 SCHEDULE FORMAT**

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Sheet Size: Multiples of 8-1/2 x 11 inches.

**PART 2 PRODUCTS**

**2.01 PRELIMINARY SCHEDULE**

- A. Define planned operations for the first 60 days of Work with a general outline for remainder of Work.
- B. Prepare preliminary schedule in the form of a horizontal bar chart.

**2.02 SUBMITTALS SCHEDULE**

- A. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontractors, the Schedule of Values, and Contractor's Construction Schedule.
- B. Submit 4 copies of schedule. Arrange the following information in a tabular format.
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.

3. Submittal category (action or informational.)
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

### **2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction, in the form of a horizontal bar chart.
- B. Identify each item by specification section number.
- C. Identify work of separate stages and other logically grouped activities.
- D. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- E. Coordinate content with Schedule of Values.
- F. Provide legend for symbols and abbreviations used.
- G. Include a separate bar for each major portion of Work or operation.
- H. Identify the first work day of each week.

### **2.04 DAILY CONSTRUCTION REPORTS**

- A. Prepare a daily construction report recording the following information concerning events at the Project site:
  1. List of subcontractors at Project site.
  2. Equipment at Project site.
  3. Material deliveries.
  4. High and low temperatures and weather conditions.
  5. Accidents.
  6. Stoppages, delays, shortages, and losses.
  7. Meter readings and similar recordings.
  8. Orders and requests of authorities having jurisdiction.
  9. Services connected and disconnected.
  10. Equipment or system tests or startups.

### **2.05 FIELD CONDITION REPORTS**

- A. Immediately upon the discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## **PART 3 EXECUTION**

### **3.01 BAR CHARTS**

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

### **3.02 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.

- C. After review, revise as necessary as result of review, and resubmit within 10 days.

### **3.03 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.
- E. Submit reports required to support recommended changes.
- F. Update schedule monthly and submit with each Application for Payment.

### **3.04 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Engineer, Architect, University of South Carolina, and other concerned parties with need-to-know scheduling responsibility.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.
- C. Post copies in Project meeting rooms and in temporary field offices.
- D. When revisions are made, distribute updated schedules to the same parties and post in the same locations.

**END OF SECTION**

**SECTION 01 35 53**

**SECURITY PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Security measures including formal security program, entry control, personnel identification, guard service, and miscellaneous restrictions.

**1.02 SECURITY PROGRAM**

- A. Protect Work, existing premises and University of South Carolina's operations from theft, vandalism, and unauthorized entry.
- B. Initiate program in coordination with University of South Carolina's existing security system at project mobilization.
- C. Maintain program throughout construction period until University of South Carolina acceptance precludes the need for Contractor security.

**1.03 ENTRY CONTROL**

- A. Restrict entrance of persons and vehicles into Project site and existing facilities.
- B. Allow entrance only to authorized persons with proper identification.
- C. Maintain log of workers and visitors, make available to University of South Carolina on request.
- D. University of South Carolina will control entrance of persons and vehicles related to University of South Carolina's operations.
- E. Coordinate access of University of South Carolina's personnel to site in coordination with University of South Carolina's security forces.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 40 00**

**QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Qualifications.
- B. Mock-ups.
- C. Control of installation.
- D. Tolerances.
- E. Testing and inspection services.
- F. Manufacturers' field services.
- G. Defect Assessment.

**1.02 QUALITY ASSURANCE**

- A. **Occupancy During Construction:** All precautions must be undertaken to ensure the safety and comfort of occupants. Areas of construction must be properly enclosed and secured at all times, and construction activities creating excessive noise, dust, dirt, debris, and noxious fumes shall be reserved for times that will least disturb the current occupants. The Owner reserves the right to stop or reschedule construction operations in order to accommodate building occupants.

**1.03 QUALIFICATIONS**

- A. **General:** Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **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.
- C. **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.
- D. **Fabricator Qualifications:** A firm experienced in manufacturing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. **Specialists:** Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements for specialists shall not supersede building codes and regulations governing the Work.
- G. **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.

#### **1.04 TESTING AND INSPECTION AGENCIES**

- A. University of South Carolina will employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

### **PART 3 EXECUTION**

#### **2.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

#### **2.02 MOCK-UPS**

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.

#### **2.03 TOLERANCES**

- A. Before installing portions of Work requiring mock-ups, build mock-ups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  1. Build mock-ups in location and of size indicated, or if not indicated, as directed by Architect.



2. Notify Architect seven days in advance of dates and times when mock-ups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mock-ups before starting work, fabrication, or construction.
  5. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work.
- B. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- C. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Adjust products to appropriate dimensions; position before securing products in place.

#### **2.04 TESTING AND INSPECTION**

- A. Testing Agency Duties:
1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
  2. Perform specified sampling and testing of products in accordance with specified standards.
  3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
  4. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
  5. Perform additional tests and inspections required by Architect.
  6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  2. Agency may not approve or accept any portion of the Work.
  3. Agency may not assume any duties of Contractor.
  4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
  3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
  5. Arrange with University of South Carolina's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by the Engineer.

- E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

#### **2.05 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

#### **2.06 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.

**END OF SECTION**

**SECTION 01 50 00  
TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Submittals.
- B. Equipment.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Waste removal facilities and services.
- F. Environmental Procedures and Controls.
- G. Temporary facilities installation, operation, and maintenance.

**1.02 SUBMITTALS**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Floor Plans: Show locations of all temporary partitions and required exits from occupied portions of the building.

**1.03 EQUIPMENT**

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Drinking-Water Fixtures: Drinking-water fountains, containerized, tap-dispensed, bottled-water drinking-water units, including paper cup supply.
- C. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

**1.04 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain required temporary toilets, wash facilities, and drinking water for construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

**1.05 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.06 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and

orderly condition.

- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**3.01 ENVIRONMENTAL PROCEDURES AND CONTROLS**

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Pollution Controls:
  - 1. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dirt and dust generated by construction operations. Comply with governing environmental protection regulations.
    - a. Do not create hazardous or objectionable conditions, such as ice, flooding, and pollution when using water.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3. Clean adjacent buildings and improvements of dust, dirt, and debris caused by construction operations. Return adjacent areas to condition existing before start of demolition.

**3.02 TEMPORARY FACILITIES INSTALLATION, OPERATION AND MAINTENANCE, 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. Installation: Install temporary sanitary facilities, barriers, and interior and exterior enclosures at time of Project mobilization.
- C. Maintenance and Operation: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
  - 1. Clean site daily.
  - 2. Temporary sanitary facilities to be cleaned daily.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of 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. Restore existing facilities used during construction to original condition.

**END OF SECTION**

**SECTION 01 51 00**

**TEMPORARY UTILITIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, and water.

**1.02 PROJECT CONDITIONS**

- 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 facility before use. Obtain required certifications and permits.
- C. Coordinate with the University Physical Plant for installation of temporary utilities.
- D. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- E. Conditions of Use: The following conditions may apply to use of temporary services and facilities by all parties engaged in the Work:
  - 1. Keep temporary services and facilities neat and clean.
  - 2. Relocated temporary services and facilities as required by progress of the Work.

**1.03 TEMPORARY ELECTRICITY**

- A. Cost: By Contractor.
- B. Connect to University of South Carolina's existing power service.
  - 1. Do not disrupt University of South Carolina's need for continuous service.
  - 2. Exercise measures to conserve energy.
- C. Provide temporary electric feeder from existing building electrical service at location as directed.
- D. Power Service Characteristics: \_\_\_\_ volt, \_\_\_\_ ampere, three phase, four wire.
- E. Complement existing power service capacity and characteristics as required.
- F. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- G. Provide main service disconnect and over-current protection at convenient location and meter.
- H. Permanent convenience receptacles may be utilized during construction.
- I. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
- J. Contractor to use only grounded electrical outlets.

**1.04 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES**

- A. Provide and maintain lighting to achieve adequate illumination for construction operations, observations, and inspections.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails,

and lamps as required.

- C. Maintain lighting and provide routine repairs.
- D. Permanent building lighting may be utilized during construction.

#### **1.05 TEMPORARY HEATING**

- A. Cost of Energy: By Contractor.
- B. Provide heating devices and heat as needed to maintain specified conditions for construction operations.
- C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.
- D. University of South Carolina's existing heat plant may be used.
  - 1. Exercise measures to conserve energy.

#### **1.06 TEMPORARY COOLING**

- A. Cost of Energy: By Contractor.
- B. Provide cooling devices and cooling as needed to maintain specified conditions for construction operations.
- C. Maintain maximum ambient temperature of 80 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.
- D. University of South Carolina's existing cooling plant may be used.
  - 1. Exercise measures to conserve energy.
  - 2. Enclose building prior to activating temporary cooling.

#### **1.07 TEMPORARY VENTILATION**

- A. Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

#### **1.08 TEMPORARY WATER SERVICE**

- A. Cost of Water Used: By Contractor.
- B. Provide and maintain suitable quality water service for construction operations at time of project mobilization.
- C. Connect to existing water source ensuring that back flow preventers are in place.
  - 1. Exercise measures to conserve water.
- D. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

#### **PART 2 PRODUCTS - NOT USED**

#### **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 01 55 00**

**VEHICULAR ACCESS AND PARKING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Access roads.
- B. Parking.
- C. Existing pavements and parking areas.
- D. Permanent pavements and parking facilities.
- E. Construction parking controls.
- F. Traffic signs and signals.
- G. Maintenance.
- H. Removal, repair.

**PART 2 PRODUCTS**

**2.01 SIGNS, SIGNALS, AND DEVICES**

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs: Specified in Section 01 58 13.

**PART 3 EXECUTION**

**3.01 ACCESS ROADS**

- A. Use of designated existing on-site streets and driveways for construction traffic is permitted.
- B. Tracked vehicles not allowed on paved areas.
- C. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
- D. Provide and maintain access to fire hydrants free of obstructions.

**3.02 PARKING**

- A. Do not allow heavy vehicles or construction equipment in parking areas.
- B. Arrange with Owner for temporary parking areas to accommodate use of construction personnel.
- C. When site space is not adequate, provide additional off-site parking.
- D. Locate as approved by Owner.

**3.03 CONSTRUCTION PARKING CONTROL**

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's ongoing operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.

- C. Prevent parking on or adjacent to access roads or in non-designated areas.

#### **3.04 HAUL ROUTES**

- A. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

#### **3.05 TRAFFIC SIGNS AND SIGNALS**

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

#### **3.06 MAINTENANCE**

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

#### **3.07 REMOVAL, REPAIR**

- A. Repair existing facilities damaged by use, to original condition.
- B. Remove equipment and devices when no longer required.
- C. Repair damage caused by installation.

#### **3.08 MUD FROM SITE VEHICLES**

- A. Provide means of removing mud from vehicle wheels before entering streets.

**END OF SECTION**



## SECTION 01 60 00

### PRODUCT REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations and procedures.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

##### 1.02 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

#### PART 2 PRODUCTS

##### 2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the University of South Carolina, or otherwise indicated as to remain the property of the University of South Carolina, become the property of the Contractor; remove from site.
- C. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

##### 2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Where all other criteria are met, Contractor shall give preference to products that:
  - 1. Are extracted, harvested, and/or manufactured closer to the location of the project.
  - 2. Have longer documented life span under normal use.
  - 3. Result in less construction waste.
  - 4. Are made of vegetable materials that are rapidly renewable.

### **2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

### **2.04 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION PROCEDURES**

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Each substitution request shall be submitted on a Substitution Request Transmittal found in this document.
- C. A request for substitution constitutes a representation that the submitter:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to University of South Carolina.
  - 4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitution Submittal Procedure:
  - 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
  - 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  - 3. The Architect will notify Contractor in writing of decision to accept or reject request.

### **3.02 TRANSPORTATION AND HANDLING**

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling,

disfigurement, or damage.

- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## SECTION 01 70 00

### EXECUTION AND CLOSEOUT REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.
- C. Cutting and patching.
- D. Cleaning and protection.
- E. Starting of systems and equipment.
- F. Demonstration and instruction of University of South Carolina personnel.
- G. Closeout procedures, except payment procedures.

##### 1.02 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of University of South Carolina or separate Contractor.

##### 1.03 PROJECT CONDITIONS

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
- C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- D. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

##### 1.04 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.

- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After University of South Carolina occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of University of South Carolina's activities.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.

- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.04 ALTERATIONS**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Engineer before disturbing existing installation.
  - 3. Beginning of alterations work constitutes acceptance of existing conditions.
- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
  - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
  - 2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.
- D. Remove existing work as indicated and as required to accomplish new work.
  - 1. Remove items indicated on drawings.
  - 2. Relocate items indicated on drawings.
  - 3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  - 4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
  2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
  3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    - a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    - b. Provide temporary connections as required to maintain existing systems in service.
  4. Verify that abandoned services serve only abandoned facilities.
  5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
  2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  3. Repair adjacent construction and finishes damaged during removal work.
- G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
- H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- I. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
  2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- J. Clean existing systems and equipment.
- K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- L. Do not begin new construction in alterations areas before demolition is complete.
- M. Comply with all other applicable requirements of this section.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  1. Complete the work.
  2. Fit products together to integrate with other work.
  3. Provide openings for penetration of mechanical, electrical, and other services.

4. Match work that has been cut to adjacent work.
  5. Repair areas adjacent to cuts to required condition.
  6. Repair new work damaged by subsequent work.
  7. Remove samples of installed work for testing when requested.
  8. Remove and replace defective and non-conforming work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.
- J. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.
  3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement



of heavy objects, by protecting with durable sheet materials.

- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Prohibit traffic from landscaped areas.
- H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

### **3.08 SYSTEM STARTUP**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer and owner seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. Submit a written report that equipment or system has been properly installed and is functioning correctly.

### **3.09 DEMONSTRATION AND INSTRUCTION**

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

### **3.10 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.11 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.

- F. Clean debris from roofs, gutters, downspouts, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.12 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to Engineer, University of South Carolina, and Architect.
- B. Notify Engineer and Architect when work is considered ready for Substantial Completion.
- C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's review.
- D. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to University of South Carolina-occupied areas.
- E. Notify Engineer when work is considered finally complete.
- F. Complete items of work determined by Engineer's final inspection.

**END OF SECTION**

## SECTION 01 74 19

### CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

#### PART 1 GENERAL

##### 1.01 WASTE MANAGEMENT REQUIREMENTS

- A. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- B. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- C. Methods of trash/waste disposal that are not acceptable are:
  - 1. Burning on the project site.
  - 2. Burying on the project site.
  - 3. Dumping or burying on other property, public or private.
  - 4. Other illegal dumping or burying.
- D. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

##### 1.02 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- L. Sediment: Soil and other debris that has been eroded and transported by storm or well

production run-off water.

- M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- N. Toxic: Poisonous to humans either immediately or after a long period of exposure.
- O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

### **PART 3 EXECUTION**

#### **2.01 WASTE MANAGEMENT PROCEDURES**

- A. See Section 01 30 00 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 01 60 00 for waste prevention requirements related to delivery, storage, and handling.
- D. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

**END OF SECTION**

**SECTION 01 78 00**

**CLOSEOUT SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

**1.02 SUBMITTALS**

- A. Project Record Documents: Submit documents to Engineer and Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
  - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
  - 2. For equipment, or component parts of equipment put into service during construction and operated by University of South Carolina, submit completed documents within ten days after acceptance.
  - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document sets as required prior to final submission.
  - 4. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with University of South Carolina's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.

- B. Ensure entries are complete and accurate, enabling future reference by University of South Carolina.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 2. Field changes of dimension and detail.
  - 3. Details not on original Contract drawings.

### **3.02 OPERATION AND MAINTENANCE DATA**

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.03 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. For Each Item of Equipment and Each System:
  - 1. Description of unit or system, and component parts.
  - 2. Identify function, normal operating characteristics, and limiting conditions.
  - 3. Include performance curves, with engineering data and tests.
  - 4. Complete nomenclature and model number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- C. Include color coded wiring diagrams as installed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.

- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
- L. Include test and balancing reports.
- M. Additional Requirements: As specified in individual product specification sections.

### **3.04 OPERATION AND MAINTENANCE MANUALS**

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- F. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- G. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
  - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
  - 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    - a. Significant design criteria.
    - b. List of equipment.
    - c. Parts list for each component.
    - d. Operating instructions.
    - e. Maintenance instructions for equipment and systems.
  - 3. Part 3: Project documents and certificates, including the following:
    - a. Shop drawings and product data.
    - b. Air and water balance reports.
    - c. Certificates.
    - d. Photocopies of warranties and bonds.

- H. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Engineers, Architect, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

### **3.05 WARRANTIES AND BONDS**

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with University of South Carolina's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

**END OF SECTION**



## SECTION 055100 - METAL STAIRS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Industrial-type stairs with steel grating treads.
  - 2. Steel tube railings attached to metal stairs.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design metal stairs, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.
  - 1. Uniform Load: 100 lbf/sq. ft..
  - 2. Concentrated Load: 300 lbf applied on an area of 4 sq. in..
  - 3. Uniform and concentrated loads need not be assumed to act concurrently.
  - 4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
  - 5. Limit deflection of treads, platforms, and framing members to L/240 or 1/4 inch, whichever is less.
- C. Structural Performance of Railings: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.
  - 1. Handrails and Top Rails of Guards:
    - a. Uniform load of 50 lbf/ ft. applied in any direction.
    - b. Concentrated load of 200 lbf applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  - 2. Infill of Guards:
    - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..

b. Infill load and other loads need not be assumed to act concurrently.

D. Seismic Performance: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

#### 1.4 ACTION SUBMITTALS

A. Product Data: For metal stairs and the following:

1. Metal Grating.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Verification: For the following products, in manufacturer's standard sizes:

1. Metal grating for flooring.

D. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer registered in the state of South Carolina responsible for their preparation.

#### 1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

#### 1.6 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

B. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," for class of stair designated, unless more stringent requirements are indicated.

1. Industrial-Type Stairs: Industrial class.

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

D. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

## 1.7 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for metal stairs. 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.
- C. Coordinate locations of hanger rods and struts with other work so that they will not encroach on required stair width and will be within the fire-resistance-rated stair enclosure.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

### 2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M. Steel Bars for Grating Treads: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM 1018/A 1018M.
- B. Steel Bars for Grating Treads: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.
- C. Wire Rod for Grating Crossbars: ASTM A 510.
- D. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.
- E. Uncoated, Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, structural steel, Grade 25, unless another grade is required by design loads; exposed.

(Grade 205)Galvanized-Steel Sheet: ASTM A 653/A 653M, G90 coating, structural steel, Grade 33, unless another grade is required by design loads.

## 2.3 FASTENERS

- A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 12 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.
- B. Post-Installed Anchors: Torque-controlled expansion anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
  - 1. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

## 2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

## 2.5 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
  - 1. Join components by welding unless otherwise indicated.
  - 2. Use connections that maintain structural value of joined pieces.
  - 3. Fabricate treads and platforms of exterior stairs so finished walking surfaces slope to drain.
- B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form exposed work with accurate angles and surfaces and straight edges.
- F. Weld connections to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. Weld exposed corners and seams continuously unless otherwise indicated.
  5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 2 welds: completely sanded joint, some undercutting and pinholes okay .
- G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated. Locate joints where least conspicuous.
- H. Fabricate joints that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

## 2.6 STEEL-FRAMED STAIRS AND LANDING

### A. Stair Framing:

1. Fabricate stringers of steel channels.
2. Provide closures for exposed ends of [channel] [tube] stringers. Construct platforms of steel channel headers and miscellaneous framing members as needed to comply with performance requirements indicated.
3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and headers. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.

### B. Metal Bar-Grating Stairs: Form treads and platforms to configurations shown from metal bar grating; fabricate to comply with NAAMM MBG 531, "Metal Bar Grating Manual."

1. Fabricate treads and platforms from welded steel grating with openings in gratings no more than 1/2 inch in least dimension.
2. Surface: Serrated.
3. Finish: Galvanized.
4. Fabricate grating treads with nosing and with steel angle or steel plate carrier at each end for stringer connections. Secure treads to stringers with bolts.
5. Fabricate grating platforms with nosing matching that on grating treads. Provide toeplates at open-sided edges of grating platforms. Weld grating to platform framing.

## 2.7 STAIR RAILINGS

### A. Steel Tube Railings: Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube,

post spacings, and anchorage, but not less than that needed to withstand indicated loads.

1. Rails and Posts: [1-1/2-inch top and bottom rails and e posts.
- B. Welded Connections: Fabricate railings with welded connections. Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 2 welds: completely sanded joint, some undercutting and pinholes okay.
- C. Form changes in direction of railings as follows:
1. By flush bends or by inserting prefabricated flush-elbow fittings.
- D. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- E. Close exposed ends of railing members with prefabricated end fittings.
- F. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.
1. Connect posts to stair framing by direct welding except where rails are indicated to be removable
  2. For galvanized railings, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous-metal components.
- 2.8 FINISHES
- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal stairs after assembly.
- C. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- D. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.

### 3.2 INSTALLING RAILINGS

- A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated or, if not indicated, as required by design loads. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:
  - 1. Anchor posts to steel by welding directly to steel supporting members.

### 3.3 ADJUSTING AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055100

## SECTION 061000 - ROUGH CARPENTRY

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking, cants, and nailers for roof curb construction.

#### 1.2 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
1. NeLMA: Northeastern Lumber Manufacturers' Association.
  2. NLGA: National Lumber Grades Authority.
  3. SPIB: The Southern Pine Inspection Bureau.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

#### 1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.



## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

### 2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

### 2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
  - 1. Blocking.
  - 2. Nailers.
  - 3. Rooftop equipment bases and support curbs.
  - 4. Cants.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any

species.

## 2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
  - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Power-Driven Fasteners: NES NER-272.
- C. Lag Bolts: ASME B18.2.1.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- E. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- C. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
  - 1. Use inorganic boron for items that are continuously protected from liquid water.
- D. Use copper naphthenate for items not continuously protected from liquid water. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated,

complying with the following:

1. NES NER-272 for power-driven fasteners.
  2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
  3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
- E. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully 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. Drive nails snug but do not countersink nail heads unless otherwise indicated.
1. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

### 3.2 PROTECTION

- A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

## SECTION 075216 - STYRENE-BUTADIENE-STYRENE (SBS) MODIFIED BITUMINOUS MEMBRANE ROOFING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Styrene-butadiene-styrene (SBS) modified bituminous membrane roofing for patching of existing roof after installation of roof curb.
2. Roof insulation.

#### 1.2 DEFINITIONS

- ##### A. Roofing Terminology:
- See ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

#### 1.3 PERFORMANCE REQUIREMENTS

- ##### A. General Performance:
- Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- ##### B. Material Compatibility:
- Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

#### 1.4 ACTION SUBMITTALS

- ##### A. Product Data:
- For each type of product indicated.
- ##### B. Shop Drawings:
- For roofing system. Include plans, elevations, sections, details, and attachments to other work.
1. Base flashings and membrane terminations.
  2. Tapered insulation, including slopes.
  3. Crickets, saddles, and tapered edge strips, including slopes.
  4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain components including roof insulation fasteners for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.
- B. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- C. Preinstallation Roofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
  - 7. Review governing regulations and requirements for insurance and certificates if applicable.
  - 8. Review temporary protection requirements for roofing system during and after installation.
  - 9. Review roof observation and repair procedures after roofing installation.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

## 1.7 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

## 1.8 WARRANTY

- 1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 APPROVED INSTALLERS

- A. Aqua Seal Manufacturing & Roofing Inc.
  - 1. Cayce, South Carolina; (803) 936-0420.
- B. Watts and Associates Roofing, Inc.
  - 1. Columbia, South Carolina; (803) 786-4610.
- C. Coastal Commercial Roofing, Inc.
  - 1. Conway, South Carolina; (843) 369-4101.
- D. C.E. Bourne
  - 1. Greenwood, South Carolina; (864) 223-0188.
- E. Southern Roofing Service, Inc.
  - 1. Sumter, South Carolina; (803) 773-8221.

### 2.2 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. SBS-Modified Bituminous Membrane Roofing:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. CertainTeed Corp.
    - b. Firestone Building Products.

- c. GAF Materials Corporation.
  - d. Garland Company, Inc. (The).
  - e. Johns Manville.
  - f. Tremco Incorporated.
- B. Roofing Membrane Sheet: [ASTM D 6164, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with polyester fabric)] [ASTM D 6163, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers)] [ASTM D 6162, Grade S, Type I or II, SBS-modified asphalt sheet (reinforced with a combination of polyester fabric and glass fibers)]; smooth surfaced; suitable for application method specified.
- 2.3 BASE-SHEET MATERIALS
- A. Base Sheet: ASTM D 4897, Type II, venting, nonperforated, heavyweight, asphalt-impregnated and -coated, glass-fiber base sheet with coarse granular surfacing or embossed venting channels on bottom surface.
- 2.4 BASE-PLY SHEET MATERIALS
- A. Glass-Fiber Base-Ply Sheet: ASTM D 2178, **Type IV**, asphalt-impregnated, glass-fiber felt.
- 2.5 BASE FLASHING SHEET MATERIALS
- A. Granule-Surfaced Flashing Sheet: ASTM D 6163, Grade G, Type I or II, SBS-modified asphalt sheet (reinforced with glass fibers); granular surfaced; suitable for application method specified, and as follows:
- 1. Granule Color: Gray.
- 2.6 AUXILIARY ROOFING MEMBRANE MATERIALS
- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Asphalt Primer: ASTM D 41.
- C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application.

- D. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.
- E. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- G. Metal Flashing Sheet: As specified in Section 076200 "Sheet Metal Flashing and Trim."
- H. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing membrane.
- I. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

## 2.7 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured[ or approved] by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated[ and that produce FM Approvals-approved roof insulation].
- B. Molded-Polystyrene Board Insulation: ASTM C 578, Type IX, 1.8-lb/cu. ft. minimum density.
- C. Perlite Board Insulation: ASTM C 728, rigid, mineral-aggregate thermal insulation board composed of expanded perlite, cellulosic fibers, binders, and waterproofing agents with top surface seal coated.
- D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

## 2.8 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.



- B. Modified Asphaltic Insulation Adhesive: Insulation manufacturer's recommended modified asphaltic, asbestos-free, cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- C. Insulation Cant Strips: ASTM C 728, perlite insulation board.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
  - 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that existing concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Prime surface of concrete deck with asphalt primer at a rate of 3/4 gal./100 sq. ft. and allow primer to dry.

#### 3.3 SUBSTRATE BOARD INSTALLATION

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

### 3.4 INSULATION INSTALLATION

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Install one lapped base-sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.
- C. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes more than 45 degrees.
- D. Install tapered insulation under area of roofing to conform to slopes indicated.
- E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
  - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- F. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or more, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- H. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
  - 1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
  - 2. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

### 3.5 ROOFING MEMBRANE INSTALLATION, GENERAL

graph above to describe roof system. Paragraph below can be used to specify roof system that exceeds requirements of NRCA's roof assemblies.

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
  - 1. Deck Type: \C (concrete or nonnailable).
  - 2. Adhering Method: L (cold-applied adhesive).
  - 3. Base Sheet: One.
  - 4. Number of SBS-Modified Asphalt Sheets: Four.
  - 5. Surfacing Type: M (mineral-granule-surfaced cap sheet).

- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Where roof slope exceeds 1/2 inch per 12 inches, install roofing membrane sheets parallel with slope.
  - 1. Backnail roofing membrane sheets according to roofing system manufacturer's written instructions.
- D. Cooperate with testing agencies engaged or required to perform services for installing roofing system.
- E. Coordinate installation of roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
  - 1. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
- F. Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

### 3.6 BASE-SHEET INSTALLATION

- A. Install lapped base-sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
  - 1. Mechanically fasten to substrate.

### 3.7 Adhere to substrate in a uniform coating of cold-applied adhesive. BASE-PLY SHEET INSTALLATION

- A. Install glass-fiber base-ply sheets according to roofing system manufacturer's written instructions starting at low point of roofing system. Align glass-fiber base-ply sheets without stretching. Extend sheets over and terminate beyond cants.
  - 1. Shingle side laps of glass-fiber base-ply sheets uniformly to ensure that required number of glass-fiber base-ply sheets covers substrate at any point. Shingle in direction to shed water.

### 3.8 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions and as follows:
  - 1. Adhere to substrate in cold-applied adhesive.

2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
1. Repair tears and voids in laps and lapped seams not completely sealed.
  2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing membrane sheets so side and end laps shed water.

### 3.9 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloped and vertical surfaces, at roof edges, and at penetrations through roof; secure to substrates according to roofing system manufacturer's written instructions, and as follows:
1. Prime substrates with asphalt primer if required by roofing system manufacturer.
  2. Backer Sheet Application: Adhere backer sheet to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
  3. Flashing Sheet Application: Adhere flashing sheet to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
- B. Extend base flashing up walls or parapets a minimum of 8 inches above roofing membrane and 4 inches onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
1. Seal top termination of base flashing with a strip of glass-fiber fabric set in asphalt roofing cement.
- D. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.

### 3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 075216

## SECTION 076200 - SHEET METAL FLASHING AND TRIM

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Formed equipment support flashing to serve as coping over built-up curb at roof.

#### 1.2 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

#### 1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.

10. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Verification: For each type of exposed finish.

1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of coping and roof edge flashing that is FM Approvals approved.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

#### 1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
  1. For copings and roof edge flashings that are FM Approvals approved, shop shall be listed as able to fabricate required details as tested and approved.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

#### 1.7 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet

metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

### 2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with embossed surface.
  1. As-Milled Finish: Standard one-side bright.

### 2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically



designed to withstand high metal temperatures beneath metal roofing. Provide primer according to written recommendations of underlayment manufacturer.

1. Products: Subject to compliance with requirements, provide the following:
  - a. Grace Construction Products, a unit of W. R. Grace & Co.-Conn.; Grace Ice and Water Shield HT.
2. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F or higher.
3. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F or lower.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

#### 2.4 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Obtain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

D. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

- E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- G. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured
- H. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- I. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- J. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.
- K. Do not use graphite pencils to mark metal surfaces.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
  - 1. Verify compliance with requirements for installation tolerances of substrates.
  - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
  - 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Prime substrate if recommended by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for

installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller. Cover underlayment within 14 days.

- B. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

### 3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
  - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
  - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
  - 3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
  - 4. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
  - 5. Torch cutting of sheet metal flashing and trim is not permitted.
  - 6. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
  - 1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
  - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
  - 2. Use lapped expansion joints only where indicated on Drawings.
- D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
  - 1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
- G. Rivets: Rivet joints in uncoated aluminum where necessary for strength.

### 3.4 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements[, sheet metal manufacturer's written installation instructions,] and cited sheet metal standard. Provide concealed fasteners where possible, and set units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
- B. Copings: Anchor to resist uplift and outward forces according to recommendations in cited sheet metal standard unless otherwise indicated.
  - 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.

### 3.5 MISCELLANEOUS FLASHING INSTALLATION

- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

### 3.6 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

### 3.7 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

## SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

### 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 hollow-metal work.
- B. Related Requirements:
  - 1. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.

#### 1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

#### 1.4 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.
- B. Shop Drawings: Include the following:
  - 1. Elevations of each door type.
  - 2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
  - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of anchorages, joints, field splices, and connections.

- C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
1. Provide additional protection to prevent damage to factory-finished units.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Amweld International, LLC.
  2. Ceco Door Products; an Assa Abloy Group company.
  3. Curries Company; an Assa Abloy Group company.
  4. D & D Specialties
  5. Custom Metal Products.
  6. Mesker Door Inc.
  7. Republic Doors and Frames.
  8. Steelcraft; an Ingersoll-Rand company.
- B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

## 2.2 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

- A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3. At locations indicated in the Door and Frame Schedule to have hollow metal doors and/or frames.
  - 1. Doors:
    - a. Type: As indicated in the Door and Frame Schedule.
    - b. Thickness: 1-3/4 inches
    - c. Face: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
    - d. Edge Construction: Model 1, Full Flush.
    - e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
  - 2. Frames:
    - a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 coating.
    - b. Construction: Full profile welded.
  - 3. Exposed Finish: Prime.
  - 4. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
  - 5. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
- C. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:
  - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

## 2.3 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.



- C. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- F. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- H. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.4 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
  - 1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
  - 2. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
  - 3. Top Edge Closures: Close top edges of doors with inverted closures of same material as face sheets.
  - 4. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.
  - 5. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
  - 6. Astragals: Provide overlapping astragal on one leaf of pairs of doors. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

C. Hollow-Metal Frames:

1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
  - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
    - 1) Two anchors per jamb up to 60 inches high.
    - 2) Three anchors per jamb from 60 to 90 inches high.
    - 3) Four anchors per jamb from 90 to 120 inches high.
    - 4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
  - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - 1) Three anchors per jamb up to 60 inches high.
    - 2) Four anchors per jamb from 60 to 90 inches high.
    - 3) Five anchors per jamb from 90 to 96 inches high.
    - 4) Five anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
6. Head Anchors: Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
7. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
  - a. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

## 2.5 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

- B. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. Install door silencers in frames before grouting.
    - b. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - c. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    - d. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
  2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
  3. Concrete Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
    - a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
    - b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
    - c. At Bottom of Door: 5/8 inch plus or minus 1/32 inch.
    - d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.
  2. Smoke-Control Doors: Install doors and gaskets according to NFPA 105.

### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or

otherwise unacceptable.

- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

## SECTION 087100 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section includes:

1. Mechanical door hardware for the following:
  - a. Swinging doors.

B. Related Sections:

1. Section 081113 "Hollow Metal Doors and Frames".

#### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
  - b. Content: Include the following information:
    - 1) Identification number, location, hand, fire rating, size, and material of each door and frame.
    - 2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    - 3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    - 4) Fastenings and other pertinent information.
    - 5) Explanation of abbreviations, symbols, and codes contained in schedule.

6) Mounting locations for door hardware.

2. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

- A. Warranty: Special warranty specified in this Section.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
- B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
  1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
  2. Comply with the following maximum opening-force requirements:
    - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
    - b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
  3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
  4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- C. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

## 1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including excessive deflection, cracking, or breakage.
    - b. Faulty operation of doors and door hardware.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
  - 2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

## 1.9 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.



## PART 2 - PRODUCTS

### 2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.

### 2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  - 1. Subject to compliance with requirements, provide product indicated on schedule or comparable product by one of the following:
    - a. Hager Companies.
    - b. IVES Hardware; an Ingersoll-Rand company.
    - c. McKinney Products Company; an ASSA ABLOY Group company.
    - d. Stanley Commercial Hardware; Div. of The Stanley Works.

### 2.3 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Bored Locks: Minimum 1/2-inch latchbolt throw.
  - 2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
  - 3. Deadbolts: Minimum 1-inch bolt throw.
- C. Lock Backset: 2-3/4 inches, unless otherwise indicated.

- D. Lock Trim:
  - 1. Levers: Cast.
  - 2. Escutcheons (Roses): Wrought.
  - 3. Operating Device: Lever with escutcheons (roses).
- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
- F. Mortise Locks: BHMA A156.13; Security Grade 1; stamped steel case with steel or brass parts; Series 1000.

#### 2.4 MANUAL FLUSH BOLTS

- A. Manual Flush Bolts: BHMA A156.16; minimum 3/4-inch throw; designed for mortising into door edge.

#### 2.5 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  - 1. Manufacturer: Same manufacturer as for locking devices.
- B. Standard Lock Cylinders: BHMA A156.5; Grade 1 1A 2; permanent cores that are interchangeable removable; face finished to match lockset.
- C. High-Security Lock Cylinders: BHMA A156.30; Grade 1 2 3; Type M, mechanical E, electrical; permanent cores that are removable; face finished to match lockset.
- D. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.
- E. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

#### 2.6 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
  - 1. Great-Grand Master Key System: Change keys, a master key, a grand master key, and a great-grand master key operate cylinders.
  - 2. Keyed Alike: Key all cylinders to same change key.

B. Keys: Nickel silver.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
  - a. Notation: "DO NOT DUPLICATE."
2. Quantity: In addition to one extra key blank for each lock, provide the following:
  - a. Great-Grand Master Keys: Five.

2.7 OPERATING TRIM

- A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

2.8 ACCESSORIES FOR PAIRS OF DOORS

- A. Astragals: BHMA A156.22.

2.9 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders: BHMA A156.8.

2.10 DOOR GASKETING

- A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

2.11 THRESHOLDS

- A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

2.12 FABRICATION

- A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.
1. Manufacturer's identification is permitted on rim of lock cylinders only.

- B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.
- C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
  - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
  - 2. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
  - 3. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

## 2.13 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

### 3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Replace construction cores with permanent cores as indicated in keying schedule.
- E. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."
- F. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.
- G. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

### 3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be

adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

- B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

### 3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### 3.6 DOOR HARDWARE SCHEDULE

#### **SET #01 - Doors 01 & 02 (Pairs of 3'-0" x 7'-0" Hollow Metal Doors)**

6	Hinges	TA2314 4 1/2 X 4 1/2 NRP	32D	MC
2	Flush Bolts	555	US26D	RO
1	Lockset	45H-7D15J STD	626	BE
2	Overhead Holder	9-326	652	RX
2	Astragal	305 CN 72"		PE
1	Weatherstrip	303 APK 1 x 72" 2 x 72"		PE
2	Door Bottom	315 CN 36"		PE
1	Threshold	2005 AT 72"		PE

END OF SECTION 087100

## SECTION 099113 - EXTERIOR PAINTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
  - 1. Concrete.
  - 2. Galvanized metal.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.5 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis of Design: Subject to compliance with requirements, provide premium line products from THE SHERWIN WILLIAMS COMPANY or one of the following:
1. Benjamin Moore & Co.
  2. ICI Paints.
  3. PPG Architectural Finishes, Inc.
  4. Rose Talbert.

### 2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
- D. Colors: As selected by Architect from manufacturer's full range.

### 2.3 PRIMERS/SEALERS

- A. Provide primers and sealers produced by the same manufacturer as the finish coats.

### 2.4 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  2. Testing agency will perform tests for compliance with product requirements.



3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  1. Concrete: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Application of coating indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
  - 4. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. SAWCUT CONCRETE SURFACES:
  - 1. Prime Coat: Penetrating Epoxy Primer: S-W Marcoproxy 920 Pre-Prime, 1.5 to 2.0 mils wet, 1.5 to 2.0 mils dry.
- B. GALVANIZED METAL:
  - 1. Prime Coat: Primer, water-based, anti-corrosive for metal: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
  - 2. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
  - 3. Topcoat: Light industrial coating, exterior, water based, gloss: S-W Pro Industrial Acrylic Gloss Coating, B66-600 Series, at 2.5 to 4.0 mils dry, per coat.

END OF SECTION 099113

**SECTION 23 00 00  
MECHANICAL, GENERAL**

**PART 1 - GENERAL**

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work under Division 23 the same as if incorporated herein.

1.2 All materials and work shall comply with the 2012 International Mechanical (IMC), 2012 International Plumbing Code (IPC), 2012 International Building Code (IBC), and the latest National Electric Code.

1.3 CONTRACT DOCUMENTS

A. Drawings for work under Division 23 indicate generally the location, arrangement and intent of the systems to be installed. They are diagrammatic and indicate reasonable arrangements.

B. It is not the intent of these documents to be used as installation drawings nor to include all related services or accessories to place systems in operation. They are not intended to be coordination documents for detail adaption to building construction, or for coordination with other trades. Installation of equipment shall be in strict accordance with the respective manufacturer's recommended instructions. Obtain certified drawings and installation instructions before starting work.

C. After thorough examination of contract documents, bring to attention of Owner prior to bid time any discrepancies, errors or omissions in Division 23. If a conflict exists, the greater quantity or better quality, in the opinion of the Engineer, governs.

D. It is the intent of these drawings and specifications to describe complete and working mechanical system(s) and to prescribe for the complete installation and testing of the equipment and devices specified under other sections of the specifications or on the drawings. Work under Division 23 includes all work necessary to make equipment and systems operational while following the details of the drawings and specifications as close as possible. When additional items are required to make systems operational, and are not specifically specified, then items shall be in accordance with the manufacturer's recommendations for the applicable conditions encountered.

E. Drawings and specifications are complimentary; work called for in either shall be provided as if called for by both.

1.4 SITE VISIT

All bidders are urged to visit the site of work and become familiar with existing conditions before submitting a bid.

1.5 DEMOLITION ITEMS

The Owner reserves the right to keep any items called for to be removed in the construction documents. Items not kept by the Owner shall be carried away from the site of work. Coordinate with Owner on each item to be removed.

1.6 SEISMIC REQUIREMENTS

A. All new materials in Division 23 shall comply with the 2012 International Building Code with the latest revisions for seismic requirements, see other sections in Division 23.

B. The Seismic Design Category shall be D.

- C. Seismic systems as manufactured by Amber/Booth or Mason Industries will be accepted.
  - D. Provide acceptance letter from the manufacturer's agent prior to project closeout indicating manufacturer review of installed seismic piping restraint systems throughout project.
  - E. Provide approved safety restraining devices and products for water heaters. Attach products and devices to the adjoining structures in accordance with specific manufacturer installation instructions.
  - F. Shop Drawings: Design of supports will require installation shop drawings furnished by the manufacturer which shall include installation methods, sizes and materials signed and sealed by a registered professional engineer in the State of South Carolina. Contractor shall furnish shop drawings for Engineer review at start of project.
- 1.7 Temperature and equipment control wiring are included under Division 23. All power sources, breakers, wiring, conduits, relays, contactors, and any power wiring required for the automatic temperature control system shall be provided by Division 23. All power wiring shall comply with the latest edition of the National Electric Code.
- 1.8 Motor starters shall be furnished under Division 23. Mounting and wiring of starters including wiring to equipment shall be provided by others. Disconnect switches when required shall be provided under Division 26. Combination starter/disconnect switches shall be furnished under Division 23. Provide all wiring, conduits, breakers, transformers, etc. required to power all control components requiring a power source.

## **PART 2 - PRODUCTS**

### **2.1 SUBSTITUTIONS**

- A. All requests for substitutions shall be submitted in writing so as to be received by the Engineer at least ten (10) calendar days prior to bid date and must be granted permission to quote before award of contract.
- B. Requests for substitution shall be submitted in the form of a letter (with one copy minimum) on letterhead of submitting firm. Letter to be addressed to the Engineer and referenced to this job.
- C. Permission to substitute items shall not be construed as authorizing any deviations from the contract documents, unless such deviations are clearly indicated in letter form. Contractor shall be responsible for verifying all dimensions with available space conditions (with provisions for proper access, maintenance, part replacement and for coordination of other trades) for proper services and construction requirements. Contractor to bear any additional costs for required changes in associated items which are directly or indirectly related to a substituted item.

### **2.2 MATERIAL AND EQUIPMENT SUBMITTALS**

- A. The Engineer will review and take appropriate action on equipment submittals, product data, samples, and other submittals required by the Contract Documents. Such review shall be only for general compliance with the design and with the information given in the Contract Documents.
- B. Prior to submittal of equipment submittals to the Engineer, review and approve equipment submittals. Equipment submittals which have not been reviewed and approved in writing by the Contractor will not be reviewed by the Engineer.
- C. Submit for review by the Engineer detailed drawings of all equipment and all material listed in this section. All submittal data shall be bound in a hardback binder. Partial submittals will not be reviewed by the Engineer. Furnish six (6) copies of equipment submittals.
- D. Equipment submitted for review shall be detailed, dimensioned drawings or catalog pages showing

construction, size, arrangement, operating clearances, performance characteristics and capacities.

- E. Review rendered on equipment submittals shall not be considered as a guarantee of measurements of building conditions. **Where drawings are reviewed, said review does not mean that drawings have been checked in detail; said review does not in any way relieve the contractor from his responsibility or necessity of furnishing materials or performing work as required by the contract documents.**
- F. Submit equipment submittals for the materials and equipment for review by the Engineer:
- Testing, Adjusting, and Balancing
  - Pipe Insulation
  - Pipe and Pipe Accessories
  - Chilled Water Cooling Coils
  - Automatic Temperature Controls

### 2.3 ELECTRICAL CONNECTIONS

It shall be the sole responsibility of the Mechanical Subcontractor to verify and ensure equipment ordered for this project matches the voltage and phase per existing conditions. No extra payments will be allowed because of the contractor's failure to do so.

## PART 3 - EXECUTION

- 3.1 Deliver to owner a complete, fully operational system. All items to be properly lubricated and operate to their full extent upon completion of the project.
- 3.2 Deliver to Owner any certificates, permits and licenses as required to comply with all City, County and State applicable laws, ordinances, codes, rules and regulations, including any certificates required by fire department. If any of these items are requested, such items shall be furnished prior to final inspection.
- 3.3 All work included in this contract shall be performed by skilled people under competent supervision employing the latest and best practices of the various trades involved. All materials and equipment hereinafter specified shall be new and free from flaws and defects of any nature. Work that is not of good quality will require removal and reinstallation.
- 3.4 COORDINATION
- A. No work shall be performed on this project before thoroughly coordinating all space requirements for equipment, sleeves, and pipes. Establish necessary tie-ins for each trade.
- B. Prior to starting installation, furnish to all trades concerned copies of reviewed material and equipment submittals, and location of equipment, sleeves, and pipes.
- C. The responsibility for obtaining, cutting and patching for work under Division 23 is included under this section of the specifications.
- D. Coordinate the exact size and location of all construction openings with the proper trades preparing the openings and be responsible for obtaining sizes as required. Supports for equipment shall be in accordance with the manufacturer's certified drawings.
- E. Temperature and equipment control wiring are included under Division 23.
- F. Contractor shall be responsible for the protection and cleanliness of equipment installed under Division 23.

- 3.5 Notify the Architect/Engineer at least three (3) days in advance prior to covering up or concealing any work under Division 23. Any work covered or concealed without consent or review of the Architect/Engineer shall be exposed for examination at the Contractor's expense.
- 3.6 Any costs of repairing any damages caused by this contractor, to the building, building contents, and/or site during construction and warranty period shall be included in Division 23.
- 3.7 Provide all cutting and patching necessary to install the work specified in Division 23. Provide all inserts, sleeves, supports and hanger rods. Lay out work in advance and establish locations of sleeves.
- 3.8 PROJECT CLOSEOUT
- A. All items shall be cleaned thoroughly inside and outside of all dust, dirt, or other foreign material.
  - B. Notify the Owner in writing that he has complied with the above prior to final inspection.
- 3.9 OWNER INSTRUCTION
- A. Instruct the Owner's representative in complete detail as to proper operation of the overall system.
  - B. Provide a hard back three-ring file folder containing all warranties, catalog data and the manufacturer's standard operating and maintenance instructions for each item of the controls system.
- 3.10 WARRANTY
- A. Warrant all work and materials specified under Division 23 for a period of one (1) year from the date of project acceptance. Upon failure of any part(s) of the system during the warranty period, the affected part(s) shall be repaired or replaced promptly by and at the expense of the Contractor.
  - B. If any component fails during regular one year period, then the replacement part(s) shall be given an additional one (1) year warranty from the time of replacement. This shall continue until the item(s) have given one (1) year satisfactory service.
- 3.11 IDENTIFICATION
- A. Identify each piece of equipment and control component. Items shall be identified by name and numerical sequence. Nameplates shall be 1/16" thick plates with 1/2" high white letters on black background. Nameplates shall be attached securely with screws, not glued.
  - B. Provide standard bronze identification tags equal to Seton Nameplate Company for each valve to identify type of service as applicable. Bronze tags shall be attached to the valve by the use of brass S-hooks. Tag identification shall be by service and each valve shall be numbered.
- 3.12 PAINTING
- A. Pipes in mechanical room shall be painted under Division 23. All pipes shall be color coded to match the USC color coding system. Color coding chart may be obtained from the USC Project Manager.
  - B. Provide color stenciling of piping for identification of flow.
  - C. Provide two coats of black rust preventative on all exposed support metal and hangers mounted in mechanical room.

- D. Paint all new equipment and materials in Division 23 (except factory-painted equipment) exposed to view. Where factory paint has been scratched on new equipment, completely sand, prime and repaint scratched areas. Paint shall be as recommended by equipment manufacturer. Pipes shall be color coded with colors selected by the Engineer. Devoe, Sherwin Williams, Pittsburg, Glidden or approved equal paints may be used.

### 3.13 ASBESTOS

- A. At any time the Contractor encounters asbestos containing materials, he shall immediately stop work and suspend any further work until asbestos containing materials are removed by others. Contractor shall, upon discovery of asbestos containing materials, notify Owner or Owner's representative, who shall be responsible for the removal of the asbestos containing materials, all in accordance with NESHAP ( National Emission Standard for Hazardous Air Pollutants.) Any form of asbestos removal or demolition shall be by Owner. Engineer is not an "Owner or Operator" as defined under NESHAP.
- B. Contractor is responsible for, and shall be aware of all state and federal laws pertaining to asbestos as well as NESHAP requirements.

### 3.14 LEAD PAINT

At any time the Contractor encounters existing paint containing lead, he shall immediately suspend any further work in the affected area until lead paint is removed by others. Contractor shall, upon discovery of lead paint, notify Owner or Owner's representative, who shall be responsible for the removal of the lead paint.

### 3.15 RECORD DRAWINGS

- A. Maintain on the job site one complete set of drawings for this project. All changes authorized by the Owner as to locations, sizes and routing of equipment, ductwork, piping and other material shall be indicated in red ink on the drawings as work progresses.
- B. Before Substantial Completion, Contractor shall obtain at his/her expense, a corrected set of drawings which he shall include the information outlined above. Drawings (including schedules, details, and sections) shall be corrected to depict all substituted materials and equipment. For this purpose the Owner will make available to the Contractor, the original drawings of the work, The final, annotated drawings shall be turned over to the Owner at the time of Substantial Completion.

**END OF SECTION 23 00 00**



**SECTION 23 05 93**  
**TESTING ADJUSTING AND BALANCING**

**PART 1 - GENERAL**

- 1.1 Section 23 00 00 Mechanical, General applies to the work specified in this section of specifications.
- 1.2 Work under this section includes the testing, adjusting and balancing air and water systems in all new heating, ventilating and air conditioning systems. The results of all tests, adjustments and balancing shall be submitted to the Engineer for approval.
- 1.3 Other sections of the specification are a part of this section. Refer to all other sections for a complete description of the work.
- 1.4 **TESTING AND BALANCING AGENCY**
  - A. All work shall be performed by an independent Test and Balance Agency certified by AABC or NEBB. All work shall be under the direct supervision of a project manager who is qualified for testing and balancing the hydronic and air performance of the new heating, air conditioning, and ventilating systems.
  - B. The Balancing Agency shall provide all labor, equipment, engineering and test equipment required to test, adjust and balance all heating, ventilating, exhaust and air conditioning systems as specified herein.
- 1.5 **INSTRUMENTS:** used shall be of high quality and as recommended by AABC or NEBB for the application. Instruments shall be properly calibrated and certified within the last six months.
- 1.6 The tests, balancing and adjusting shall be performed as many times as required to prove project requirements have been met. If requested by the Engineer, tests shall be performed in his presence.
- 1.7 **ACCURACY:** The balancing firm shall warrant, solely that the system will be set to within 10% of the values as established by the drawings and specifications and also adjust to minimize drafts in all areas.
- 1.8 **CHANGES:** Any changes that are required for the final balancing results as determined by the balancing firm shall be provided under this section of the specifications. Such changes shall include, but not limited to, changing of pulleys, belts, dampers or adding dampers or access panels.
- 1.9 **SCOPE OF WORK:** Provide testing, adjusting, and balancing services for the new chilled water cooling coils and existing supply air fan. Prior to start of demolition provide testing of the existing supply air fan CFM and chilled water flow at each air handler. Record and submit existing conditions with final test and balance report.

**PART 2 - PRODUCTS**

- 2.1 **SUBMITTALS:**
  - A. Prior to acceptance of the systems by the Owner, submit to the Engineer for his review, a written testing, adjusting and balancing report, in triplicate, contained in a hard-backed three ring notebook.
  - B. All reports, forms and data sheets shall generally be the standards of AABC or NEBB.

**PART 3 - EXECUTION**

3.1 BALANCING PROCEDURE:

- A. Before starting air balance, check the following items:
  - 1. Air filters to assure cleanliness and position
  - 2. All fans for proper belt tension, alignment and rotation
  - 3. Fan and motor lubrication
- B. Measure supply air volumes by means of the duct traverse method, taking a minimum of 16 readings. Seal duct access holes with snap-in plugs. The use of duct tape to seal access holes will not be allowed.
- C. Adjust balancing dampers for required branch duct air quantities. Dampers shall be permanently marked after air balance is complete.
- D. The total air delivery in any particular fan system shall be obtained by adjustment of the particular fan speed or fan sheave set point. The drive motor of each fan shall not be loaded over the corrected full load amperage rating of the motor involved.
- E. Before starting water balance, check the following items:
  - 1. Cleanliness of system water
  - 2. Cleanliness of all system strainers
  - 3. Manual air vents
  - 4. Pump and motor lubrication
  - 5. Motor overload protectors or heaters for proper size
  - 6. Proper pump rotation
- F. Measure pump capacities by venturi, orifices or flow meters if installed or by differential pressure measurements, amperage and brake horsepower method using pump manufacturer's capacity curve. Position all automatic valves, hand valves and circuit setters for full flow through coils, tube bundles, etc. during pump adjustment. Use only calibrated test gauges for pump adjustment; the use of pressure gages installed within the system will not be permitted.
- G. Coordinate the setting of controls to maintain coil water inlet design temperatures, with coil valves positioned for full flow through coil during adjustment. Balance individual water coils at full flow to maintain temperature differential specified.
- H. Lock in setpoint on circuit setters correctly.

3.2 ADJUSTING AND BALANCING Adjust, balance, record and submit as previously specified, for each of the following:

- 1. Existing Air Handling Unit Fan:
  - a. Supply Fan Total CFM
  - b. Supply Fan Total Static Pressure
  - c. External Static Pressure
  - d. Actual Motor Amperage and Voltage
  - e. Fan RPM for all new fans.

2. New Chilled Water Coils:
  - a. Chilled Water Flow rate, GPM
  - b. Chilled Water Pressure Drop, Ft. of Water
  - c. Chilled Water Entering and Leaving Temperature
  - d. Air Flow rate Across Coil, CFM
  - e. Air Pressure Drop Across Coil, Inches of Water
  - f. Air Entering Dry Bulb and Wet Bulb Temperature
  - g. Air Leaving Dry Bulb and Wet Bulb Temperature
  - h. Coil Face Area, Square Feet
  - i. Coil Face Air Velocity, Feet per Minute

**END OF SECTION 23 05 93**

**SECTION 23 07 00  
MECHANICAL INSULATION**

**PART 1 - GENERAL**

1.1 Section 23 00 00 Mechanical, General applies to the work specified in this section of specifications.

1.2 INSULATION

All insulation material shall have a fire hazard classification not to exceed flame spread of 25 and smoke developed rating of 50, as listed by Underwriters Laboratories and acceptable under NFPA standards. This is to apply to the complete system and to the composite insulation with jacket or facings, vapor barrier, joint sealing tapes, mastic and fittings.

**PART 2 - PRODUCT**

2.1 PIPE INSULATION

A. Rigid pipe insulation shall be Foamglass pipe covering with the following minimum properties:

Absorption of moisture:	<1% per ASTM C209
Water vapor permeability:	0.005 per ASTM E96
Compressive strength:	25 psi per ASTM C165
Density:	2.0 lbs/cf per ASTM D1622
Dimensional stability:	0.8% change
Flexural strength:	64 psi per ASTM C203
Thermal conductivity:	0.29 btu-in/hr-sf-°F @ 75°F per ASTM C177

B. Pipe insulation sealer shall be Foster 60-25 or equal.

C. See Section 23 00 00 Mechanical, General for pipe markers.

**PART 3 - EXECUTION**

3.1 INSULATION FIRM

All insulation work shall be performed by a franchised insulation firm. All insulation shall be installed in a workmanlike manner by qualified workers in the regular employ of the insulation firm.

3.2 PIPE INSULATION

A. Chilled water pipe shall be insulated with 2" thick rigid pipe insulation. All seams shall be sealed with pipe insulation sealer. A light coat of sealer shall be applied over the entire surface of the insulation and embedded with Fab-Cloth in the sealer. This application shall be applied twice over the insulation. Surface to be smooth when complete. Insulation shall be covered with a U.L. labeled, 8 ounce cotton canvas and two coats of Childers CP-52 lagging adhesive. Adhesive shall completely seal cloth ready for painting.

B. See Identification Section of these specifications for pipe painting and labeling.

**END OF SECTION 23 07 00**

**SECTION 23 21 13  
MECHANICAL PIPING**

**PART 1 - GENERAL**

- 1.1 Section 23 00 00 Mechanical, General applies to the work specified in this section of specifications.
- 1.2 Pipe locations shown are approximate. Exact location of pipes to be as determined in field to avoid other pipes and maintain access clearances. All existing pipe sizes noted on the drawings shall be field verified before connection.
- 1.3 Piping to comply with best trade practice. Provide clearance between pipe and building structure so pipes can expand without damage to building/manhole structure.
- 1.4 Welding shall be done only by qualified welders certified by a recognized and approved local testing laboratory. Welding qualifications shall be in accordance with ANSI Standard Code for Pressure Piping. Welders shall have qualified within the past eighteen (18) months.

**PART 2 - PRODUCTS**

**2.1 PIPE**

- A. Chilled water pipe, 2-1/2" and larger shall be schedule 40 black steel (ASTM A53 Gr. B, ERW) with butt weld joints.
- B. Chilled water pipes 2" size and smaller shall be type L copper with sweat fittings.
- C. Condensate drain piping shall be type L copper with sweat fittings.
- D. Provide dielectric insulating unions where pipes of dissimilar materials meet.
- E. Fittings shall be ASTM A234, Gr. WPB, butt weld, ERW.
- F. Flanges shall be ASTM A105, Class 150, R.F., W.N.
- G. Gaskets shall be ring type, 1/16" thick, compressed non-asbestos, Garlock Style 3000 or approved equal. Provide flex-a-talic metal gaskets at all steam piping flanges.
- H. Stud bolts shall be ASTM A193, Gr. B7 with heavy hex nuts, ASTM A194, Gr. 2H.

**2.2 VALVES:**

- A. Valves shall be designed for a minimum of 125 psi working pressure. The manufacturer name and the working pressure to be cast on valve body.
- B. Main Isolation Butterfly Valves ( Air Handler Valves) shall be Class 125 designed for a minimum of 125 psi working pressure. Valves shall be lug type, triple offset, conical metal to metal seated with single piece shaft. Valves shall be manufactured by ZWICK, Adams, or approved equal.
- C. Coil Isolation Butterfly valves (for runout piping to coil banks) shall be Class 125 designed for a minimum of 125 psi working pressure. Valves shall be lug type butterfly with cast iron body. Disc edge and liner shall be designed for low friction and tight seal. Disc shall be constructed of stainless steel ASTM A-743 gr. CF-8M. Liner shall be EPDM coated. Stem shall include a reinforcing EPDM bushing for low friction and stem-load support. Stem shall be triple sealed for low leakage with blowout-proof stem design. Valves shall be Milwaukee Series M or equal by Nibco, Jenkins, Hammond, Apollo, or approved equal.

2.3 THERMOMETERS

- A. Pipe thermometers shall be OMEGA type SPT11 Series Solar Powered LCD Thermometers with hi-impact ABS case, 3/8" LCD digit display, 1% accuracy, 10 Lux rating, and glass passivated thermistor type sensor. Industrial glass shall have full conformance with Fed Spec GG-T-321D. Bimetallic shall be in full conformance with ASME B40.3 - 1990. "S" dimension shall be 6".
- B. Equal thermometers manufactured by Trerice, Winters, Weksler, Meljoco or approved equal will be accepted.

2.4 PRESSURE GAUGES

- A. Pressure gauges shall be 4-1/2" dial, liquid filled, flangeless stainless steel case with glass window and bronze bourdon tube. All gauges shall be high quality liquid filled type, graduated in psig with an accuracy of 1% at mid-scale and 1-1/2% over the balance. All gauges shall be provided with a needle valve and pressure snubber.
- B. Gauge ranges shall be selected so the normal working pressure will be at mid-scale. Gauges shall be located where shown on drawings.
- C. Gauges shall be as manufactured by Trerice, Weksler, Wheatley, Winters or approved equal.

2.5 PIPE HANGERS

- A. Pipe hangers to be the product of one of the following manufacturers shown and of model number indicated in the following table:

	<u>1/2" thru 2"</u>	<u>2-1/2" and larger</u>	<u>wallplate hangers</u>
Grinnell	104	260	139
Fee & Mason	199	239	302
Elgen 92	12	---	---

- B. Provide oversized pipe hangers over insulated piping. Install 18 gauge galvanized, shield between hanger and insulation. Ten inch long shield to extend 180° around the bottom of the insulated pipe.
- C. Hangers in mechanical rooms shall be cadmium plated.
- D. Location and method of support subject to Engineer's approval. Threaded rods and supplementary steel to span structural supports to accommodate hangers is included in Division 15.

2.6 Pipe Sleeves

- A. Where pipes pass through masonry construction, install sleeves sized to allow 1/2" clearance entirely around the passing pipe and insulation. Provide sealing compound in 1/2" clearance. Install sleeves in a waterproof manner.
- B. Sleeves shall be made of schedule 40 steel pipe.
- C. Where sleeves are cut into existing masonry walls or floors, grout new sleeve into opening in

existing wall or floor.

### **PART 3 - EXECUTION**

- 3.1 Run pipes parallel to walls and floors, using a few fittings consistent with required flexibility. Pipe penetrations shall be perpendicular to walls. Wherever pipes change size, use eccentric fittings.
- 3.2 Ream pipes after cutting. Apply a lubricating non-hardening pipe dope compound to male threads only. Clean insides of pipes before installation.
- 3.3 Provide a union or a flange in ferrous pipes at each piece of equipment, valve, etc. and as required for service and maintenance. Provide dielectric unions where pipes of dissimilar metals connect.
- 3.4 Support pipes 2" size and under by hangers not over 8 feet apart. Support pipes over 2" size by hangers not more than 12 feet apart. Support vertical pipes by riser clamps not over 6 feet apart.
- 3.5 Piping Tests
  - A. All piping installed shall be hydraulically tested as specified herein. Contractor shall provide all equipment required to make the tests specified herein.
  - B. Piping may be tested a section at a time in order to facilitate the construction.
  - C. Contractor shall fill the section of pipe to be tested with water and bring the section up to pressure with a test pump. These tests shall be conducted before any insulation is installed and any insulation installed prior to these tests shall be removed. Gauges used in the tests shall have been recently calibrated with a dead weight tester.
  - D. All tests shall apply full test pressure to the piping for a minimum of 24 hours.
  - E. All tests shall be conducted at 150 pounds per square inch.
  - F. When the test pressure has fallen over 5% during the 24 hour test period, the point of leakage shall be found, repaired and the test repeated. This procedure shall be followed until the piping system has met requirements above.
- 3.6 Chemical Cleaning Of Pipes
  - A. The Contractor shall furnish all labor and chemicals for the cleaning of pipes.
  - B. Contractor shall chemically clean all steam and condensate return piping systems to remove dirt, oil, grease, and other foreign contaminants. After cleaning, drain and flush all systems.
- 3.7 SEISMIC RESTRAINT OF PIPING
  - A. Seismically restrain all piping with cable restraints as listed below:
    - 1. Restrain all piping located in boiler rooms and mechanical rooms 1-1/4 inches nominal diameter and larger.
    - 2. Restrain all pipes 2-1/2 inches nominal diameter and larger.
  - B. Piping suspended by individual hangers 12 inches or less in length, as measured from the top of the pipe to the bottom of the support where the hanger is attached, need not be restrained.
  - C. Transverse restraint shall be at 40 feet maximum except where a lesser spacing is required to

limit pipe stress.

- D. Longitudinal restraints shall be at 80 feet maximum. In pipes where thermal expansion is a consideration, an anchor point may be used as the specified longitudinal restraint provided that it has a capacity equal to or greater than a longitudinal restraint. The longitudinal restraints and connections must be capable of resisting the additional force induced by expansion and contraction.
- E. Transverse restraints for one pipe section may also act as longitudinal restraints for a pipe section of the same size connected perpendicular to it if the restraint is installed within 24 inches of the elbow or tee.
- F. Branch lines may not be used to restrain main lines.

**END OF SECTION 23 21 13**



**SECTION 23 72 13**  
**AIR HANDLING UNIT COOLING COILS**

**PART 1 - GENERAL**

- 1.1 Section 23 00 00 Mechanical, General applies to the work specified in this section of specifications.
- 1.2 Provide Chilled Water Cooling Coils as manufactured by Temtrol, Heatcraft, JCI, Daikin, Trane or accepted equal.

**PART 2 - PRODUCT**

**2.1 WATER COILS**

- A. Coils shall be designed with aluminum plate fins and copper tubes.
- B. Cooling coils shall be designed with top and bottom coil flanges suitable for stacking one on top of another. Provide intermediate drain pans on all stacked cooling coils. The intermediate pan shall drain to the main drain pan through a copper downspout. Water coils shall be constructed of seamless copper tubing mechanically expanded into fin collars. All fins shall be continuous within the coil casing to eliminate carryover inherent with a split fin design. Fins are die formed Plate type.
- C. Headers are to be seamless copper with die formed tube holes.
- D. Connections shall be male pipe thread (MPT) Schedule 40 Red Brass with 1/8" vent and drain provided on coil header for coil drainage. Coils shall be suitable for 250 PSIG working pressure. Intermediate tube supports shall be supplied on coils over 44" fin length with an additional support every 42" multiple thereafter.
- E. Furnish with full size stainless steel condensate drain pan below each coil bank. Intermediate condensate drain pans shall be supplied by coil manufacturer.

**PART 3 - EXECUTION**

**3.1 FILLER PANELS**

- A. Remove existing paneling when indicated on drawings. Clean existing walls, ceiling, and floor of air handling unit.
- B. Contractor shall prepare accurate, dimensioned shop drawings of existing built-up air handling unit room before starting new work. Shop drawings may be reviewed by the Engineer, but the ultimate responsibility of accuracy shall remain the Contractor's.
- C. Patch existing walls and ceiling of air handling unit where pipes, ducts, and conduits were removed in a very neat manner. Modify air openings in air handling unit and seal new edges as recommended by the acoustical panel manufacturer. The minimum panel and insulation thickness shall be 2" .
- D. Seal edges of insulated panels with galvanized sheet metal where they terminate at coil and filter rack blank off panels and room access doors.
- E. Coordinate with other trades pipe and conduit penetrations. Example: conduit for light fixtures in built-up air handling room shall be run behind inner perforated sheet metal panel.
- F. Structural integrity of the completed enclosure shall provide for maximum panel deflections of

1/240 of free span when enclosure is subjected to a test pressure of 10" water column without the use of any fasteners at panel joints. Data used to determine structural performance shall have been the result of independent testing of a representative sample of the manufacturer's regular production which shall have been certified by the independent tester. Panels shall be tested by subjecting them to a negative air pressure simulating the loadings imposed under normal operation. Panel tests as a result of application to artificial loads unevenly distributed over the entire panel surface will not be accepted.

- G. Structural steel required to limit the deflection herein specified shall be designed and provided by the contractor. All equipment supports shall be designed, furnished and installed by the contractor.

### 3.2 COILS

- A. Mount new coils on new 4" high concrete support in compliance with the seismic requirements of the 2012 International Building Code. Install coils in accordance with manufacturer's written installation instructions. Pipe as indicated on piping diagrams.
- B. Provide condensate drain pans at each coil stack, fabricated of 18 gauge type 304 stainless steel broken in all 4 plains towards the drain opening to prevent standing water. The drain pans shall extend 12" beyond the discharge air coil face. Provide type L copper drain pipe to nearest floor drain.

### 3.4 BLANK-OFF PLATES

- A. Provide blank-off plate on sides and top of coil banks as required to provide proper air flow thru coils and filters, and to provide proper support of coils banks and filter racks.
- B. Blank-off plates shall be constructed of 4"x4"x1/4" steel angle at coil connections, at connections to existing walls and ceilings, and at connections to concrete floor beams. 16 gauge galvanized sheet metal shall be welded to the angles to complete the plates.
- C. Blank-off plates shall be attached to coils as recommended by the coil manufacturer. Attach blank-off angles to concrete floor beams, existing walls, and existing ceiling slab with 3/8" galvanized bolts on 8" centers maximum. Provide caulking at connections to concrete floor beams, walls, and ceiling.
- D. Coordinate blank-off plate design with insulated pipe connections to coils.

**END OF SECTION 23 73 13**

**SECTION 25 55 00**  
**AUTOMATIC TEMPERATURE CONTROLS**

**PART 1 - GENERAL**

- 1.1 Section 23 00 00 Mechanical, General applies to the work specified in this section of specifications.
- 1.2 Scope of Work
- Furnish all labor, materials, equipment, and service necessary for a complete and operating temperature control system, utilizing Direct Digital Controls (DDC) with electronic interfaces and pneumatic actuation devices as described herein and as necessary to provide a complete and operating system.
- Provide new control valves and equipment controllers as detailed in the contract documents. Provide replacement of existing sensors as outlined below. New equipment controllers shall interface with the existing N2 communication trunk as well as communicate with existing equipment/sensors to remain.
- 1.3 The basis of design for the new direct digital control (DDC) systems as specified herein shall be Johnson Controls, Inc. Any alternate supplier of the new digital controls system shall be required to demonstrate full interoperability with the existing Johnson Controls, Inc. server to the Owner's and Engineer's satisfaction.
- 1.4 All electrical work required under this section of specifications shall comply with the latest National Electrical Code. Control system power supply shall be served by a separate breaker and fused in control center for secondary protection.
- 1.5 Motor starters/variable frequency drives shall be furnished under Division 23. Mounting and wiring of starters/variable frequency drives including wiring to equipment shall be provided under Division 26. Disconnect switches when required shall be provided under Division 26. Combination variable frequency drive/starter/disconnect switches shall be furnished under Division 23, see Electrical drawings.
- 1.6 Provide all wiring, conduits, breakers, transformers, etc. required to power all control components requiring a power source.
- 1.7 All control wiring shall be run in rigid conduit. Control wiring shall be color coded #16 TFF or TFFN wire with 600 volt insulation.
- 1.8 QUALITY ASSURANCE
- A. The system shall be installed by competent mechanics, regularly employed by the Automatic Temperature Controls Company.
- B. All system components are to be designed and built to be fault tolerant.

**PART 2 - PRODUCTS**

**2.1 AIR HANDLING UNIT CONTROLLERS**

**A. Field Equipment Controller**

1. The Field Equipment Controller (FEC) shall be a fully user-programmable, digital controller that communicates via N2 protocol with the capability of converting to BACnet MS/TP protocol in the future.

The FEC shall support JCI N2 and BACnet Standard MS/TP Bus Protocol ASHRAE

SSPC-135, Clause 9 on the controller network.

- The FEC shall be BACnet Testing Labs (BTL) certified and carry the BTL Label.
  - The FEC shall be tested and certified as a BACnet Application Specific Controller (B-ASC).
  - A BACnet Protocol Implementation Conformance Statement shall be provided for the FEC.
  - The Conformance Statement shall be submitted 10 days prior to bidding.
2. The FEC shall employ a finite state control engine to eliminate unnecessary conflicts between control functions at crossover points in their operational sequences. Suppliers using non-state based DDC shall provide separate control strategy diagrams for all controlled functions in their submittals.
  3. Controllers shall be factory programmed with a continuous adaptive tuning algorithm that senses changes in the physical environment and continually adjusts loop tuning parameters appropriately. Controllers that require manual tuning of loops or perform automatic tuning on command only shall not be acceptable.
  4. The FEC shall be assembled in a plenum-rated plastic housing with flammability rated to UL94-5VB.
  5. The FEC shall include a removable base to allow pre-wiring without the controller.
  6. The FEC shall include troubleshooting LED indicators to identify the following conditions:
    - a. Power On
    - b. Power Off
    - c. Download or Startup in progress, not ready for normal operation
    - d. No Faults
    - e. Device Fault
    - f. Field Controller Bus - Normal Data Transmission
    - g. Field Controller Bus - No Data Transmission
    - h. Field Controller Bus - No Communication
    - i. Sensor-Actuator Bus - Normal Data Transmission
    - j. Sensor-Actuator Bus - No Data Transmission
    - k. Sensor-Actuator Bus - No Communication
  7. The FEC shall accommodate the direct wiring of analog and binary I/O field points.
  8. The FEC shall support the following types of inputs and outputs:
    - a. Universal Inputs - shall be configured to monitor any of the following:
      - Analog Input, Voltage Mode
      - Analog Input, Current Mode
      - Analog Input, Resistive Mode
      - Binary Input, Dry Contact Maintained Mode
      - Binary Input, Pulse Counter Mode
    - b. Binary Inputs - shall be configured to monitor either of the following:
      - Dry Contact Maintained Mode
      - Pulse Counter Mode
    - c. Analog Outputs - shall be configured to output either of the following:

- Analog Output, Voltage Mode
  - Analog Output, current Mode
- d. Binary Outputs - shall output the following:
- 24 VAC Triac
- e. Configurable Outputs - shall be capable of the following:
- Analog Output, Voltage Mode
  - Binary Output Mode
9. The FEC shall have the ability to reside on a Field Controller Bus (FC Bus).
- a. The FC Bus shall be a Master-Slave/Token-Passing (MS/TP) Bus supporting BACnet Standard protocol SSPC-135, Clause 9.
- b. The FC Bus shall support communications between the FECs and the NAE.
- c. The FC Bus shall also support Input/Output Module (IOM) communications with the FEC and with the NAE.
- d. The FC Bus shall support a minimum of 100 IOMs and FECs in any combination.
- e. The FC Bus shall operate at a maximum distance of 15,000 Ft. between the FEC and the furthest connected device.
10. The FEC shall have the ability to monitor and control a network of sensors and actuators over
- a. Sensor-Actuator Bus (SA Bus).
- b. The SA Bus shall be a Master-Slave/Token-Passing (MS/TP) Bus supporting BACnet Standard Protocol SSPC-135, Clause 9.
- c. The SA Bus shall support a minimum of 10 devices per trunk.
- d. The SA Bus shall operate at a maximum distance of 1,200 Ft. between the FEC and the furthest connected device.
11. The FEC shall have the capability to execute complex control sequences involving direct wired I/O points as well as input and output devices communicating over the FC Bus or the SA Bus.
12. The FEC shall support, but not be limited to, the following:
- a. Hot water, chilled water/central plant applications
- b. Built-up air handling units for special applications
- c. Terminal units
- d. Special programs as required for systems control
13. The FEC shall support a Local Controller Display either as an integral part of the FEC or as a remote device communicating over the SA Bus.
- a. The Display shall use a BACnet Standard SSPC-135, clause 9 Master-Slave/Token-Passing protocol.
- b. The Display shall allow the user to view monitored points without logging into the system.
- c. The Display shall allow the user to view and change setpoints, modes of operation, and

- parameters.
- d. The Display shall provide password protection with user adjustable password timeout.
  - e. The Display shall be menu driven with separate paths for:
    - Input/Output
    - Parameter/Setpoint
    - Overrides
  - f. The Display shall use easy-to-read English text messages.
  - g. The Display shall allow the user to select the points to be shown and in what order.
  - h. The Display shall support a back lit Liquid Crystal Display (LCD) with adjustable contrast and brightens and automatic backlight brightening during user interaction.
  - i. The display shall be a minimum of 4 lines and a minimum of 20 characters per line
  - j. The Display shall have a keypad with no more than 6 keys.
  - k. The Display shall be panel mountable.

### 2.3 PRESSURE INDEPENDENT CONTROL VALVES (PICV)

- A. The new modulating chilled water control valves shall be pressure independent. The valves shall be DeltaPValve as manufactured by Flow Control Industries, Inc. or equal by Danfoss.
- B. Control valves shall be industrial quality and able to be fully rebuilt. Valves shall be designed to last 30 years. Balance valves shall not be required.
- C. Control valves shall be individually flow tested and factory verified to deviate no more than +/- 5% through the operating pressure range (5 psid minimum. A calibrated performance tag shall be provided with each valve that verifies the flow rate in 10° rotation increments from 0 to 100% rated flow.
- D. Control valve rangeability shall be 100:1 minimum.
- E. Valve bodies 2" and smaller shall be brass. Valve bodies 2-1/2" and larger shall be ductile iron. All internal parts shall be brass, carbon steel, stainless steel, or Teflon. Plastic internal parts will not be accepted.
- F. Valves shall have three factory installed pressure/temperature ports.
- G. Valve flow characteristics may be modified in valves 8" and smaller without removal from the piping system. All seats may be replaced in valves 3" and smaller without removal from the piping system.
- H. Actuators from Johnson Controls, Inc. shall be factory mounted. Actuator selection shall meet close-off requirements and have 1% resolution.
- I. Valves shall be warranted by the manufacturer for no less than a full five years from the date of purchase. The warranty provided by the actuator manufacturer shall apply to the actuators.

### 2.4 ELECTRONIC DATA INPUTS AND OUTPUTS

- A. Input/output sensors and devices shall be closely matched to the requirements of the DDC panel for accurate, responsive, noise free signal input/output. Control input response shall be high sensitivity and matched to the loop gain requirements for precise and responsive control. Temperature sensors shall be available from several different manufacturers for future replacement.
- B. Differential Sensors and Switches:

1. Fan proof-of-flow switches shall be U.L. listed adjustable set point differential pressure type. Switches shall be piped to fan discharge except where fans operate at less than one inch w.g. they shall be piped across the fan. For fractional horsepower and non-ducted fans, relays or auxiliary contacts may be used. Maximum pressure rating shall be at least 10 inches w.g.
2. Output control relays for on/off type control from the DDC panel shall be low voltage, low current, U.L./CSA listed, DPDT relays. For all control relays the contact rating shall exceed the current draw of the controlled device and be above the minimum.

2.5 MISCELLANEOUS DEVICES

Pneumatic Air: Reuse existing. Replace any tubing not in good operating condition. Replacement tubing shall be continuous; splicing of tubing will not be allowed.

PART 3 - EXECUTION

3.1 SEQUENCE OF OPERATION – EXISTING PENTHOUSE AIR HANDLING UNIT

A. Controller:

1. Built-up air handling unit shall be provided with an individual standalone DDC controller (FEC) for controlling supply air temperature and pressure as indicated in the following sequence of operation. The fan status by a flow switch and shall be monitored and alarmed by the operators terminal. The alarms shall be locked out for 30 seconds (adjustable) upon system start-up and de-energized during shut-down to avoid nuisance alarm. A "failure to start" and "failure to stop" alarms will be indicated at the operators terminal.
2. Provide a graphical display of the air handling units system mounted on the face of the panel door of the air handling units control panel for local status monitoring and override of system parameters. Graphical display shall include the following sensor values, statuses and overrides.

Identification	Device	Monitor	Setpoint
Discharge Air Setpoint	Existing		●
Discharge Air Static Setpoint	Existing		●
Supply Fan Status	Existing	●	
Filter Alarm	Existing	●	
Discharge Air Temp	New Sensor	●	
Return Air Temp	New Sensor	●	
Mixed Air Temp	New Sensor	●	
Discharge Static Pressure	New Sensor	●	
Outside Air Temp	Existing	●	
Outside Air Humidity	Existing	●	
Chilled Water Valve output	New Sensor		●
Return Smoke Detector	Existing	●	
Supply Smoke Detector	Existing	●	
Temp Low Limit Alarm (1 per Coil Bank)	(2) New Sensors	●	
Variable Speed Drive Fault	Existing	●	
AHU System Start/Stop	Existing		●
Supply Fan Start/Stop	Existing		●

B. Start Stop:

1. Supply fan will be started and stopped based on an adjustable time schedule. The alarms

shall be locked out for 30 seconds (adjustable) upon system start-up and de-energized during shut-down to avoid nuisance alarm. A "failure to start" and "failure to stop" alarms will be indicated at the operators terminal.

2. Prior to being started the supply fan variable speed drive shall be in the "unloaded" position. Loading and unloading of the fan shall be as programmed by the manufacturer's control panel. Fans will load over an adjustable time period. Coordinate with the test and balance company to verify fan speeds with load configuration.
3. Coordinate with the test and balance company to verify outside air and return flows.

C. Night High Limit and Night Low Limit:

1. During unoccupied periods the existing air handling unit will be energized whenever space temperature drops below a night low limit setpoint of 65°F (adjustable) or a night high limit of 85°F (adjustable).

D. Safeties:

1. Static pressure high limit switches located in the discharge of each supply fan will shut down the air handler whenever static pressure in the discharge of either supply fan exceeds 10" W.G. (Adjustable). Provide alarm to energy management system.
2. An existing duct smoke detector will shut the fan off whenever products of combustion are sensed. Provide alarm to energy management system.
3. Provide and wire an output from the fire alarm panel to shut down the fans whenever the fire alarm panel goes into an alarm condition.

E. Temperature Control:

1. Discharge air temperature shall be controlled at 55°F by modulating the CHW control valve as necessary to maintain setpoint. Provide water temperature sensors in the CHW supply and return pipes to the cooling coil. Sensors shall report to energy management system.

3.2 Furnish to engineer two copies of certifications signed by authorized representative that:

1. Control system has been checked-out and operates according to drawings, specifications, and existing operating conditions,
2. All controls are warranted unconditionally for one year from date of acceptance and will be serviced for this period free of charge.
3. Maintenance personnel or responsible party has been instructed as to the operation of control system.

**END OF SECTION 25 55 00**