

Project Manual for:

University of South Carolina  
LeConte Math Library Renovation  
Columbia, SC

H27-2141  
CP00369994

March 27, 2014

**MP/FP: Engineers:**  
Swygert and Associates  
1315 State Street  
Cayce, SC 29033  
803-791-9300

**Electrical Engineers:**  
Belka Engineering  
7 Clusters Court #201  
Columbia, SC 29210  
803-731-0650



**COMPASS 5 PARTNERS, LLC**

1329 STATE STREET CAYCE, SC 29033

803-765-0838 P

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**PROJECT NAME:** LeConte Math Library Renovation

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# SE-310 REQUEST FOR ADVERTISEMENT

2011 Edition  
Rev. 7/20/2011

**PROJECT NAME:** LeConte Math Library Renovation

**PROJECT NUMBER:** H27-Z141

**PROJECT LOCATION:** 3<sup>rd</sup> Floor, LeConte Columbia, SC 29201

Contractor may be subject to performance appraisal at close of project

**BID SECURITY REQUIRED?** Yes ☒ No ☐

**PERFORMANCE & PAYMENT BONDS REQUIRED?** Yes ☒ No ☐

**CONSTRUCTION COST RANGE:** \$400,000-475,000

**DESCRIPTION OF PROJECT:** The project scope includes the renovation of +-4400sf to create an area for faculty offices on the third floor of LeConte. Work includes limited demolition, new partitions, ceiling, casework, finishes and supporting mechanical, electrical and plumbing. Small and minority business participation is encouraged.

**A/E NAME:** Compass 5 Partners, LLC

**A/E CONTACT:** Mareyllyn Cannizzaro, AIA, NCARB, LEED AP

**A/E ADDRESS:** Street/PO Box: 1329 State Street

City: Cayce

State: SC ZIP: 29033-

**EMAIL:** mcannizzaro@compass5partners.com

**TELEPHONE:** 803 765 0838

**FAX:** N/A

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

**BIDDING DOCUMENTS/PLANS MAY BE OBTAINED FROM:** http://purchasing.sc.edu (See Facilities/Construction Solicitations & Awards)

**PLAN DEPOSIT AMOUNT:** \$0.00 **IS DEPOSIT REFUNDABLE:** Yes ☐ No ☐

Only those Bidding Documents/Plans obtained from the above listed source(s) are official. Bidders rely on copies of Bidding Documents/Plans obtained from any other source at their own risk.

**BIDDING DOCUMENTS/PLANS ARE ALSO ON FILE FOR VIEWING PURPOSES ONLY AT** *(list name and location for each plan room or other entity):*

http://purchasing.sc.edu

It is the bidders responsibility to obtain all bidding documents from the purchasing website.

**PRE-BID CONFERENCE?** Yes ☒ No ☐ **MANDATORY ATTENDANCE?** Yes ☐ No ☒

**DATE:** 4/15/2014 **TIME:** 10:00AM **PLACE:** 743 Greene St. Columbia, SC 29208 Conf. Room 53

**AGENCY:** University of South Carolina

**NAME OF AGENCY PROCUREMENT OFFICER:** Juaquana Brookins

**ADDRESS:** Street/PO Box: USC Columbia

City: Columbia

State: SC ZIP: 29208-

**EMAIL:** jbrookin@fmc.sc.edu

**TELEPHONE:** 803 777 3596

**FAX:** 803 777 7334

**BID CLOSING DATE:** 4/29/2014 **TIME:** 2:00PM **LOCATION:** 743 Greene St. Columbia, SC 29208 Conf. Room 53

**BID DELIVERY ADDRESSES:**

**HAND-DELIVERY:**

Attn: Juaquana Brookins

USC Facilities Management Center

743 Greene Street

Columbia, SC 29208

**MAIL SERVICE:**

Attn: Juaquana Brookins

USC Facilities Management Center

743 Greene Street

Columbia, SC 29208

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

**APPROVED BY** *(Office of State Engineer):* \_\_\_\_\_

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

**Instruction to Bidders**  
**(AIA Document A701-1997 Edition)**  
**Can be viewed at USC Campus Planning and Construction**

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

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**OWNER:** University of South Carolina**PROJECT NUMBER:** H27-Z141**PROJECT NAME:** LeConte Math Library Renovation**PROJECT LOCATION:** 3<sup>rd</sup> Floor, LeConte Columbia, SC 29201**PROCUREMENT OFFICER:** Juaquana Brookins**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 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), Supplementary Instructions to Bidders, the bid form (SE-330), the Intent to Award Notice (SE-370), 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.

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

**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.

(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—

- (i) Those prices;
- (ii) The intention to submit an bid; or
- (iii) 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 an 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)(i) 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)(i), the term "principals" means the person(s) in the bidder's organization responsible for determining the prices offered in this bid];

(ii) As an authorized agent, does certify that the principals referenced in subdivision (b)(2)(i) 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

(iii) 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-

(i) Bidder and/or any of its Principals-

(A) Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;

(B) 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

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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

(C) 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)(i)(B) of this provision.

(ii) 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), Bid 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.

(d) 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 an Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) 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

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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.** *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."*

**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.

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**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. Useful information may be available at: [http://www.scemd.org/scgovweb/weather\\_alert.html](http://www.scemd.org/scgovweb/weather_alert.html)

**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.

**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 may 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 list only the 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.

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**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.

**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 4.3.6 and substitute the following:**

**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.

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

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**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.

**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-responsive

**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 D (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.”*

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

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**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.

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 (FORM NUMBER I-312) LOCATED AT:  
<http://www.sctax.org/Forms+and+Instructions/withholding/default.htm>.

**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

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

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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**

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

**Room or Area of Posting:** Reception Area

**Building Where Posted:** Facilities Planning and Construction

**Address of Building:** 743 Greene Street, Columbia, South Carolina 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.

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

(a) by email to [protest-ose@mmo.sc.gov](mailto:protest-ose@mmo.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**

Bidder's 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.

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

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**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**

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

**END OF DOCUMENT**

# **AIA**® 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)*

Blank

**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.

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

Init.

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User Notes:

(1769493559)

Signed and sealed this    day of    ,

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Contractor as Principal)

\_\_\_\_\_  
(Seal)

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

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

\_\_\_\_\_  
(Seal)

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

Init.

/

# SE-330 – LUMP SUM BID BID FORM

2011 Edition  
Rev. 9/21/2011

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

**BID SUBMITTED BY:** \_\_\_\_\_

*(Bidder's Name)*

**BID SUBMITTED TO:** University of South Carolina

*(Owner's Name)*

**FOR PROJECT: PROJECT NAME** LeConte Math Library Renovation

**PROJECT NUMBER** H27-Z141

## **OFFER**

§ 1. In response to the Invitation for Construction Bids 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 11-32-3030(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:

**ADDENDUM No:** \_\_\_\_\_

§ 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):* The project scope includes the renovation of +-4400sf to create an area for faculty offices on the third floor of LeConte. Work includes limited demolition, new partitions, ceiling, casework, finishes and supporting mechanical and electrical.,

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

*(Bidder - insert Base Bid Amount on line above)*

# SE-330 – LUMP SUM BID BID FORM

2011 Edition  
Rev. 9/21/2011

§ 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)

**SE-330 – LUMP SUM BID  
BID FORM**

2011 Edition  
Rev. 9/21/2011

**§ 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 Specialty work listed:

<b>SUBCONTRACTOR SPECIALTY By License Classification and/or Subclassification (Completed by Owner)</b>	<b>SUBCONTRACTOR'S PRIME CONTRACTOR'S NAME (Must be completed by Bidder) BASE BID</b>	<b>SUBCONTRACTOR'S PRIME CONTRACTOR'S SC LICENSE NUMBER</b>
N/A	N/A	N/A
<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.

## **INSTRUCTIONS FOR SUBCONTRACTOR LISTING**

- 1.** Section 7 of the Bid Form sets forth a list of subcontractor specialties for which bidder is required to identify by name the subcontractor(s) Bidder will use to perform the work of each listed specialty. Bidder must identify only the subcontractor(s) who will perform the work and no others.
- 2.** 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. 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) are not subcontractors and Bidder should not insert their names in the spaces provided on the bid form. Likewise, Bidder should not insert the names of sub-subcontractors in the spaces provided on the bid form but only the names of those entities with which bidder will contract directly.
- 3.** Bidder must only insert the names of subcontractors who are qualified to perform the work of the listed specialties as specified in the Bidding Documents and South Carolina Licensing Laws.
- 4.** If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a specialty listed 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.** 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"**.
- 6.** Bidder may not list subcontractors in the alternative nor in a form that may be reasonably construed at the time of bid opening as a listing in the alternative. A listing that requires subsequent explanation to determine whether or not it is a listing in the alternative 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 name of each entity listed for that specialty. Owner 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 Owner may reasonably interpret as a listing in the alternative.
- 7.** If Bidder is awarded the contract, bidder must, except with the approval of the owner for good cause shown, use the listed entities to perform the work for which they are listed.
- 8.** 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.
- 9.** Bidder's failure to insert a name for each listed specialty subcontractor will render the Bid non-responsive.

## **SE-330 – LUMP SUM BID 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 Bids, 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 70 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 sum of \$500.00 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 sum 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 law 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  
BID FORM**

**2011 Edition**  
Rev. 9/21/2011

**BIDDER'S TAXPAYER IDENTIFICATION**

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER: \_\_\_\_\_

**OR**

SOCIAL SECURITY NUMBER: \_\_\_\_\_

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

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

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

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

BY SIGNING THIS BID, THE PERSON SIGNING REAFFIRMS ALL REPRESENTATIONS AND CERTIFICATIONS MADE BY BOTH THE PERSON SIGNING AND THE BIDDER, INCLUDING WITHOUT LIMITATION, THOSE APPEARING IN ARTICLE 2 OF THE INSTRUCTIONS TO BIDDER. THE INVITATION FOR BIDS, AS DEFINED IN THE INSTRUCTIONS TO BIDDERS, IS EXPRESSLY INCORPORATE BY REFERENCE.

**SIGNATURE**

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

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

**BY:** \_\_\_\_\_  
(Signature)

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

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

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

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

**Standard Form of Agreement between Owner and Contractor  
(AIA Document A101-2007 Edition)  
Can be viewed at USC Campus Planning and Construction**

# OSE FORM 00501

## STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

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**OWNER:** University of South Carolina

**PROJECT NUMBER:** H27-Z141 CP00369994

**PROJECT NAME:** LeConte Math Library Renovation

### 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 shall be measured from the Date of Commencement as provided in Section 9(a) of the Bid Form (SE-330) for this Project. 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 (SE-330), 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%).”*

# OSE FORM 00501

## STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

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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."

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  
**Title:** Senior Project Manager  
**Address:** 743 Greene Street Columbia, SC 29208  
**Telephone:** 803 777 0776 **FAX:** 803 777 8739  
**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:** Christian Mergner  
**Title:** Project Manager  
**Address:** 743 Greene Street Columbia, SC 29208  
**Telephone:** 803 777 3126 **FAX:** 803 777 7334  
**Email:** cmergner@fmc.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:** \_\_\_\_\_

**STANDARD MODIFICATIONS TO AGREEMENT BETWEEN  
OWNER AND CONTRACTOR**

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**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:** Maryellyn Cannizzaro

**Title:** President & CEO Compass 5 Partners, LLC

**Address:** 1329 State Street

**Telephone:** 803 765 0838 **FAX:** N/A

**Email:** mcannizzaro@compass5partners.com

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

Invitation for Construction Bids (SE-310)

Instructions to Bidders (AIA Document A701-1997)

Standard Supplemental Instructions to Bidders (OSE Form 00201)

Contractor's Bid (Completed SE-330)

Notice of Intent to Award (Completed SE-370)

Certificate of procurement authority issued by the SC Budget & Control Board

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

**END OF DOCUMENT**

**General Conditions of the Contract for Construction  
(AIA Document A201-2007 Edition)  
Can be viewed at USC Campus Planning and Construction**

# OSE FORM 00811

## STANDARD SUPPLEMENTARY CONDITIONS

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**OWNER:** University of South Carolina

**PROJECT NUMBER:** H27-Z141

**PROJECT NAME:** LeConte Math Library Renovation

### 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.

**OSE FORM 00811****STANDARD SUPPLEMENTARY CONDITIONS**

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**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..

**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 ten copies of the Contract Documents. The Contractor may make reproductions of the Contract Documents pursuant to Section 1.5.2. All copies of the drawings and specifications, except the Contractor's record set, shall be returned or suitably accounted for to the Owner, on request, upon completion of the Work.

**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.

**OSE FORM 00811****STANDARD SUPPLEMENTARY CONDITIONS**

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**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.

**3.17** *Insert the following at the end of Section 3.6:*

The Contractor shall comply with the requirements of Title 12, Chapter 9 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

**OSE FORM 00811****STANDARD SUPPLEMENTARY CONDITIONS**

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.

**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."*

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**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 whom 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** *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

**OSE FORM 00811****STANDARD SUPPLEMENTARY CONDITIONS**

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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 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.

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

**3.46** *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.

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

**3.48** *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.

**3.49** *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-480 "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;

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- .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.

**3.50** *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.

**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 expenditures 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.

**3.51** *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.

**3.52** *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:

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- .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.

**3.53** *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.

**3.54** *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:

- .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.

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**3.55** 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.

**3.56** 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.

**3.57** 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.

**3.58** 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 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.

**3.59** 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.

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**3.60** 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.

**3.61** *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,"*

**3.62** *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.

**3.63** *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

**3.64** *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.

**3.65** *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 of same have been delivered to the Owner.

**3.66** *In Section 9.8.2, insert the word "written" after the word "comprehensive" and before the word "list."*

**3.67** *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

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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.

**3.68** *In the second sentence of Section 9.8.5, delete the words "and consent of surety, if any."*

**3.69** *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."*

**3.70** *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.

**3.71** *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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**3.72** 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.

**3.73** 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.

**3.74** 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.

**3.75** 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.

**3.76** 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.

**3.77** 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.

**3.78** 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

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

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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.

**3.81** *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.

**(1) COMMERCIAL GENERAL LIABILITY:**

(a) General Aggregate (per project) .....	<u>\$1,000,000</u>
(b) Products/Completed Operations .....	<u>\$1,000,000</u>
(c) Personal and Advertising Injury .....	<u>\$1,000,000</u>
(d) Each Occurrence .....	<u>\$1,000,000</u>
(e) Fire Damage (Any one fire) .....	<u>\$50,000</u>
(f) Medical Expense (Any one person) .....	<u>\$5,000</u>

**(2) BUSINESS AUTO LIABILITY (including All Owned, Non-owned, and Hired Vehicles):**

(a) Combined Single Limit .....	<u>\$1,000,000</u>
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**(3) WORKER'S COMPENSATION:**

(a) State Statutory .....	
(b) Employers Liability .....	<u>\$100,000</u> Per Acc.
	<u>\$500,000</u> Disease, Policy Limit
	<u>\$100,000</u> 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.

**3.82** *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

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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.

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

**11.1.4** A failure by the Owner either (i) to demand a certificate of insurance or written endorsement required by Section 11.1, or (ii) to 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.

**3.84** *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.

**3.85** *Delete the language of Section 11.3.1.2 and substitute the word "Reserved."***3.86** *Delete the language of Section 11.3.1.3 and substitute the word "Reserved."***3.87** *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.

**3.88** *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.

**3.89** *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.

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

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**3.92** 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.

**3.93** 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.

**3.94** 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.

**3.95** 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..

**3.96** 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.

**3.97** 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.

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**3.98** *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.

**3.99** *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.

**3.100** *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.***3.101** *In Section 12.2.2.3, add the following to the end of the sentence:*

unless otherwise provided in the Contract Documents.

**3.102** *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.

**3.103** *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.

**3.104** *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.

**3.105** *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.

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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.

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

Unless expressly provided otherwise,

**3.107** *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

**15.4** Service of Process

**3.108** *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.

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

**3.110** *Add the following Sections 13.8 through 13.16:*

**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)

**3.111** *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

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- .2** An act of government, such as a declaration of national emergency that requires substantially all Work to be stopped.
- .3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment 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

**3.112** *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.

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

**3.115** *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.***3.116** *In Section 14.2.4, replace the words “Initial Decision Maker” with the word “Architect”***3.117** *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.

**3.118** *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.

**3.119** *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.

**3.120** *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;

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- .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.

**3.121** *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.

**3.122** *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 Budget and Control Board 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.

**3.123** *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.

**3.124** *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.

**3.125** *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.

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**3.126** *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.

**3.127** *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) calendar 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. 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.

**3.128** *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 waived 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. 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).

**3.129** *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)

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attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

**3.130** *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.*

**3.131** *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.

**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.

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**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.

**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.

**3.132 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)*  
☐ Building Inspections are required and are part of the Contract Sum. The inspections required for this Work are : *(Indicate which services are required and the provider)*

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

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

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**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)*

See Division 01 Sections.

**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)*

See Division 01 Sections.

**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)*

See Division 01 Sections.

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

See Division 01 Sections.

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

USC Supplemental General Conditions for Construction Projects.

Project Name: LeConte Math Library Renovation

Project Number: H27-Z141 CP00369994

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 \_\_\_\_\_, 2\_\_\_\_ (seal)

\_\_\_\_\_ State

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

USC SUPPLEMENTAL GENERAL CONDITIONS  
FOR CONSTRUCTION PROJECTS

1. Contractor's employees shall take all reasonable means not to interrupt the flow of student traffic in building corridors, lobbies and stairs. All necessary and reasonable safety precautions shall be taken to prevent injury to building occupants while transporting materials and equipment through the building to the work area. Providing safe, accessible, plywood pedestrian ways around construction may be required if a suitable alternative route is not available.
2. Fraternalization between Contractor's employees and USC students, faculty or staff is strictly prohibited-zero tolerance!
3. 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.
4. Contractor's employees must adhere to the University's policy of maintaining a drug-free and smoke-free/tobacco free workplace.
5. 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.
6. A welding permit must be issued by the University Fire Marshall before any welding can begin inside a building. Project Manager will coordinate.
7. Contractor must notify the University immediately upon the discovery of suspect material such as those potentially containing asbestos or other such hazardous materials. These materials **must not** be disturbed until approved by the USC Project Manager.
8. 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. No personal vehicles will be allowed in this area, or in any areas surrounding the construction site that are not regular or authorized parking lots. Personal vehicles must be parked in the perimeter parking lots. Parking permits can be obtained at the USC Parking Office located in the Pendleton Street parking garage. The lay down area will be clearly identified to the contractor by the PM, with a sketch or drawing provided to Parking. In turn, the contractor will mark off this area with a sign containing the project name, PM 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 PM. The area will be maintained in a neat and orderly fashion. Vehicles parked in the lay down area (or designated parking areas) will be clearly marked or display a CPC furnished placard for identification.

9. Contractor will be responsible for providing its own temporary toilet facilities, unless prior arrangements are made with the USC Project Manager.
10. Use of USC communications facilities (telephones, computers, etc.) by the Contractor is prohibited, unless prior arrangements are made with the USC Project Manager.
11. For all projects over \$100,000, including IDC's, an SE-395, Contractor Performance Evaluation, will be completed by the USC Project Manager and 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 and a Construction Performance rating will be established.
12. Contractor is responsible for removal of all debris from the site, and is required to provide the necessary dumpsters which will be emptied at least 1 times per week. 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.
13. **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.**
14. 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). As requested, the contractor will submit all Safety Programs and Certificates of Insurance to the University for review.
15. Tree protection fencing is required to protect existing trees and other landscape features to be preserved within a construction area. The limits of this fence will be evaluated for each situation with the consultant, USC Arborist and USC Project Manager. The tree protection fence shall be 5' high chain link fence unless otherwise approved by USC Project Manager. No entry 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.
16. Where it is necessary to cross walks, tree root zones (i.e., under canopy) or lawns the following measures shall be taken: For single loads up to 9,000 lbs., a 3/4" minimum plywood base shall be placed over areas impacted. For single loads over 9,000 lbs., two layers of 3/4" plywood is required.
17. For projects requiring heavy loads to cross walks tree root zones or lawns. 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

Updated: July 15, 2011

matting structurally functional.

18. Any damage to existing landscaping (including lawn areas) will be remediated before final payment is made.
19. Orange safety fence to be provided by the contractor. (USC Arborist, Kevin Curtis may be contacted at 777-0033 or 315-0319)

### **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.

**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: LeConte Math Library Renovation

State Project Number: H27-Z141

Brief Description of Awarded Work, as found on the SE-330, Bid Form: The project scope includes the renovation of +-4400sf to create an area for faculty offices on the third floor of LeConte. Work includes limited demolition, new partitions, ceiling, casework, finishes and supporting mechanical and electrical.

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

Name: Compass 5 Partners, LLC

Address: 1329 State Street

Cayce, SC 29033

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\_\_\_\_\_, BOND NUMBER \_\_\_\_\_  
*(shall be no earlier than Date of Contract)*

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)*

**Performance Bond****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 and 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

Project Name: LeConte Math Library Renovation

Project Number: H27-Z141

Brief Description of Awarded Work, as found on the SE-330, Bid Form: The project scope includes the renovation of +-4400sf to create an area for faculty offices on the third floor of LeConte. Work includes limited demolition, new partitions, ceiling, casework, finishes and supporting mechanical and electrical.

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

Name: Compass 5 Partners, LLC

Address: 1329 State Street  
Cayce, SC 29033

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 and Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

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

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 and Material Payment 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 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.

## SECTION 01000 SPECIAL CONDITIONS AND REQUIREMENTS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

#### 1.2 BIDDING AND CONTRACT DOCUMENTS

- A. The following documents are to be used by all Contractors and Bidders and are considered to be part of the Agreement between the Owner and Contractor:

1. Invitations for Construction Bids – Refer to SE310 (2011 Editions)
2. Instructions to Bidders – Refer to AIA Document A701, 1997 Edition Instructions to Bidders that apply to this project and Article 00201-OSE, Standard Supplemental instructions to Bidders (2011 Editions).
3. Standard Form of Agreement between Owner and Contractor – Refer to AIA Document A101, 2007 Edition for the terms and conditions of the contract for this project and Article 00501-OSE, Standard Modifications to AIA A101 (2011 Edition).
4. General Conditions of the Contract for Construction – Refer to AIA Document A201, 2007 Edition.
5. Standard Supplementary Conditions – Article 00811-OSE (2011 Edition).
6. USC Supplemental General Conditions for Construction Projects, dated July 15, 2011

#### 1.3 TIME OF COMPLETION/CONSTRUCTION SCHEDULE

- A. It is the intent of the Owner to award the contract and issue a Notice of Intent to Award if the bid/price is within the funds available for the project. Based on this, the Contractor shall commence preparations to begin work under this Contract within seven (7) calendar days of the Notice to Proceed.
- B. Contractor shall submit a Construction Schedule within seven (7) days after the Notice to Proceed. No applications for Payment will be issued until the Project Schedule has been submitted. Updated Project Schedule must be submitted with each monthly Application for Payment. See also Division 01 Sections for schedule and submittal requirements.

#### 1.4 PERMITS, FEES, LICENSES, AND INSPECTIONS

- A. The Owner shall obtain all permits from the local governing authorities and pay any costs or fees associated with permits and required inspections.

- B. The Contractors and Subcontractors must obtain and possess any and all business licenses required by the local authorities having jurisdiction over the project.
- C. The Contractors and Subcontractors must meet any local or State licensing requirements regarding demolitions or disposal of materials including hazardous materials.

#### 1.5 CHANGE PROPOSALS

- A. All proposals related to changes in the work must be detailed for the Owner and Architect for review. The cost proposal must include detailed breakdowns for labor cost, number of hours, material unit costs, quantities, mark ups, taxes, shipping, etc. Any proposals submitted without detail information will be rejected. Any request for additional time must be submitted along with cost proposals for review. See Supplementary Conditions for requirements related to itemized information.

#### 1.6 HAZARDOUS MATERIALS (HAZMAT) SURVEY

- A. A copy of the Hazardous Materials Survey for this project is included as an attachment to this section. The information is for the Bidder's review and use as prepared by the F&ME Consultants. Contractor shall examine the hazmat survey to become aware of locations where hazardous materials are present.
- B. The hazardous materials that are expected to be encountered in the Work, will be removed but the Owner under a separate contract and prior to the Contractor's commencement of the Work.
- C. If suspected hazardous materials are encountered, do not disturb; immediately notify Owner and Architect.

#### 1.7 NOTIFICATION

- A. In case of emergency, notify Chritian Mergner, USC Campus Planning & Construction, Project Manager for this project at 777-4569 or USC Safety Department at 777-5269.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01000

**Description** HAZMAT SURVEY ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO 2

<b>Site</b>	COLUMBIA	<b>Assigned To</b>	JPROVENCE
<b>Building</b>	060 LECONTE COLLEGE	<b>Crew</b>	HAZMAT
<b>Floor</b>	<b>Room:</b>	<b>Start Date</b>	<b>Priority</b> 5
<b>Equipment</b>		<b>Due date</b>	28-FEB-13
		<b>Request Date</b>	29-JAN-13 <b>by</b> CHAPMAS

<b>Request #</b>	FM00417708	<b>Description</b>	HAZMAT SURVEY ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO 2
<b>Parent WO #</b>			

<b>CP Number</b>	CP00369994	ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO OFFICES
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<b>State/Internal Project Number</b>	
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<b>Requestor</b>	<b>Project Manager</b>	MERGNER, CHRISTIAN F.
<b>Telephone</b>	<b>Telephone</b>	777-4569
<b>Alternate</b>	<b>Estimated Cost</b>	\$ 1,100.00
<b>Telephone</b>	<b>Billing</b>	FIXED PRICE
<b>Non-Available Time</b>	12100-A007-52043	(ARTS & SCIENCES-FACILTIES COMMITMENTS)

**Task List**

HAZMAT SURVEY TESTING SCOPE OF WORK [FALL 2013 PROJECT]  
 THIS PROJECT WILL INCLUDE TAKING DOWN THE ENTIRE CEILING GRID AND ACCOUSTICAL CEILING TILE. REMOVAL OF THE ENTIRE EXISTING HVAC EQUIPMENT & DUCTS ABOVE THE CEILING. REMOVAL OF GYP. BD. WALLS AROUND THE PERIMETER TO REVEAL EXISTING WINDOWS, WHICH HAVE BEEN CLOSED IN THE PAST. THE COUNTERTOPS AND DRYWALL IN THE CENTER RECEPTION AREA WILL BE REMOVED [E.G. OLD MATH LIBRARY WILL BE CONVERTED INTO NEW OFFICES AND MEETING ROOMS FOR FACULTY AND STAFF].

(CHECK ALL THAT APPLY AND PROVIDE ADDITIONAL INFORMATION AS NEEDED)

HAZMAT SURVEY(S) REQUESTED FOR THE FOLLOWING

- ☐ FLOOR TILE
- ☐ JOINT COMPOUND
- ☐ WALLS
- ☐ MASTIC
- ☐ CEILING TILE
- ☐ PIPE INSULATION
- ☐ VINYL SHEET FLOORING
- ☐ FIREPROOFING
- ☐ FUME HOODS/TABLE TOPS
- ☐ ROOFING MATERIALS
- ☐ FIRE DOORS
- ☐ GASKETS/VALVES
- ☐ BOILER INSULATION
- ☐ ACOUSTICAL POPCORN CEILING
- ☐ DUCT WORK
- ☐ OTHER (PLEASE DESCRIBE BELOW)

DATE WORK STARTED	CAUSE
DATE WORK COMPLETED	CONDITION
EQUIPMENT	
CLOSING REMARKS	
BENCHSTOCK MATERIALS	
Qty	Description
	Price Per Unit

Supervisor's Approval \_\_\_\_\_

Note	Date	Title
01-JUL-13		HAZMAT SURVEY RESULTS
SURVEY DATE: 6/26/13		
INSPECTOR #: DARRYL WASHINGTON II BI-00568		
STATUS: THE FOLLOWING MATERIALS HAVE BEEN CHECKED FOR ASBESTOS AND LEAD MATERIALS RESULTS FOLLOWS		
12X12 WHITE FLOOR TILE / BLACK MASTIC - POSITIVE FOR ASBESTOS CONTAINING MATERIALS		
SHEET ROCK ( HELP DESK AREA )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
JOINT COMPOUND ( HELP DESK AREA )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
SHEET ROCK ( PERIMETER WALLS )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
JOINT COMPOUND ( PERIMETER WALLS )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
2X2 WHITE CEILING TILE- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
CAULKING AROUND HELP DESK - NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
COVE BASE / GLUE ( BOTH SETS ) - NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
OFF WHITE PAINT - NEGATIVE FOR LEAD BASE PAINT		
INSPECTORS NOTES:		
NO SUSPECT MATERIALS DETECTED ABOVE CEILING IN THIS LARGE SPACE. ASBESTOS BLACK MASTIC WAS DETECTED ON THE FIBERGLASS LINES ABOVE THE CEILING. ASBESTOS TSI AROCELL LINES MAY OR MAY NOT BE DETECTED ABOVE THE CEILING, INSPECTORS DID NOT LOCATE ANY OF THIS MATERIAL		
IF YOU ENCOUNTER ANY SUSPECT MATERIALS IN PLACE AND DEEM IT SUSPECT FOR ASBESTOS AND OR LEAD AND IT IS NOT LISTED ABOVE PLEASE STOP WORK AND CALL THE ASBESTOS PROGRAM MANAGER FOR FURTHER TESTING OR ABATEMENT REFER TO THE SURVEY RESULTS DOCUMENT ATTACHED TO THE WO FOR DETAILED INFORMATION.		
02-APR-04		ASBESTOS MAY BE PRESENT IN THIS BUILDING
WARNING - ASBESTOS EXPOSURE ALERT - EXPOSURE TO ASBESTOS MAY BE HARMFUL TO YOUR HEALTH		
AS OF 02/04/2004 THE FOLLOWING AREAS WITHIN THE BUILDING HAVE BEEN IDENTIFIED BY SURVEY TO CONTAIN ASBESTOS:		
BLDG 060                   LECONTE		
BASEMENT- HOT WATER GENERATOR ı 32 SQ. FT.		
BASEMENT - HOT WATER MECHANICAL RM AND HALLWAYS 386 LIN FT.		
MECHANICAL RM 216 --> ABOVE CEILING IN CRAWL SPACE AT ROOM 9B   [860 LIN. FT.]		
BASEMENT MECHANICAL RM / IN PIPE CHASE ON EACH FLOOR --> CHILL WATER ELBOWS   [56 LIN. FT.]		
BASEMENT MECH. ROOM ---> PIPE CHASE CHILL WATER VALVE & FLANGE   [78 SQ. FT.]		
MECH. ROOM, ATTIC --> STEAM LINE, PIPE CHASE   [162 LIN. FT.]		
ATTIC ABOVE CEILINGS --> PIPE TRANSIT   [1000 LIN. FT.]		
THE FOLLOWING COMMON TYPES OF BUILDING COMPONENTS COULD CONTAIN MATERIALS THAT, WHEN DISTURBED, MIGHT EXPOSE		

YOU TO ASBESTOS:

1. FLOOR TILE
2. PIPE INSULATION
3. BLACK MASTIC
4. HVAC DUCT MASTIC
5. SPRAYED-ON FIREPROOFING
6. SPRAYED-ON CEILINGS
7. SHEETROCK JOINT COMPOUND

BEFORE DISTURBING THESE TYPES OF COMPONENTS, CONFIRM THAT THEY DO NOT CONTAIN ASBESTOS AND TAKE PROPER PRECAUTIONS AT ALL TIMES

**09-AUG-10 2009-08-19 BLDG COMPONENT ASBESTOS/LEAD EXPOSURE UPDATE**

BELOW ARE THE ASBESTOS AND LEAD TESTING RESULTS FOR LECONTE COLLEGE:

SHEET ROCK: NEGATIVE ASBESTOS CONTAINING MATERIALS

JOINT COMPOUND: POSITIVE FOR ASBESTOS CONTAINING MATERIALS

2X2 WHITE CEILING TILE: NEGATIVE FOR ASBESTOS CONTAINING MATERIALS

IN THIS BUILDING THERE ARE NUMEROUS AMOUNTS OF TILE IN DIFFERENT SIZES AND COLORS

THROUGHOUT THE BUILDING THAT CONTAIN ASBESTOS. THE BLACK MASTIC HOLDING

IT IN PLACE CONTAINS ASBESTOS AND THE STATE OF COLOR OF THE MATERIAL IS BLACK.

THERE ARE LINES ABOVE THE CEILING THAT HAVE BLACK MASTIC HOLDING IT TOGETHER AT THE

JOINTS AND THERE IS HARD 4 INCH LINES (WHITE IN COLOR) THAT THE TSI (INSULATION)

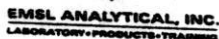
CONTAINS ASBESTOS

IF YOU AND/ OR CONTRACTORS NEED TO DISTURB ANY MATERIALS YOU DEEM SUSPECT THAT ARE NOT LISTED ABOVE, STOP WORK AND CONTACT THE ASBESTOS PROGRAM MANAGER, 777-1208. IF YOU NEED TO DISTURB ANY MATERIAL LISTED AS POSITIVE, YOU MUST CONTACT THE ASBESTOS PROGRAM MANAGER TO ARRANGE FOR REMOVAL. THIS INFORMATION MUST BE PASSED ALONG TO ALL CONTRACTORS, SUB-CONTRACTORS, AND INDIVIDUALS WORKING IN THIS BUILDING

Reading No	Time	Type	Duration	Units	Sequence	Component	Substrate	Side
911	6/26/2013 10:29	PAINT		1.3 mg / cm ^2	Final	calibrate		
912	6/26/2013 10:31	PAINT		1.31 mg / cm ^2	Final	WALL	DRYWALL	
913	6/26/2013 10:31	PAINT		2.61 mg / cm ^2	Final	WALL	DRYWALL	
914	6/26/2013 10:31	PAINT		3.06 mg / cm ^2	Final	WALL	DRYWALL	
915	6/26/2013 10:32	PAINT		2.63 mg / cm ^2	Final	WALL	DRYWALL	
916	6/26/2013 10:32	PAINT		1.75 mg / cm ^2	Final	WALL	DRYWALL	
917	6/26/2013 10:32	PAINT		3.5 mg / cm ^2	Final	WALL	DRYWALL	
918	6/26/2013 10:33	PAINT		3.49 mg / cm ^2	Final	WALL	DRYWALL	
919	6/26/2013 10:33	PAINT		1.52 mg / cm ^2	Final	WALL	DRYWALL	
920	6/26/2013 10:33	PAINT		0.44 mg / cm ^2	Final	WALL	CONCRETE	
921	6/26/2013 10:34	PAINT		3.48 mg / cm ^2	Final	WALL	CONCRETE	
922	6/26/2013 10:34	PAINT		4.14 mg / cm ^2	Final	WALL	CONCRETE	
923	6/26/2013 10:35	PAINT		3.26 mg / cm ^2	Final	WALL	CONCRETE	
924	6/26/2013 10:35	PAINT		4.78 mg / cm ^2	Final	WALL	CONCRETE	
925	6/26/2013 10:37	PAINT		20.04 mg / cm ^2	Final	WALL	CONCRETE	
926	6/26/2013 10:38	PAINT		0.65 mg / cm ^2	Final	CALIBRATE		

Condition	Color	Site	Inspector	Floor	Room	Misc 1	Misc 2	Results
	WHITE							Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Null
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Null
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
INTACT	off white	LECONTE	WASHINGTON	THIRD	MATH LIBRARY			Negative
	ORANGE							Positive

Depth Index	Action Level	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error
1.28		0.7 < LOD		0.09 < LOD		0.09 < LOD	1.86
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.95
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.44
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.2
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.39
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.43
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	0.75
1.53		0.7 < LOD		0.03 < LOD		0.03 < LOD	0.9
1		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.79
1		0.7 < LOD		0.07 < LOD		0.07 < LOD	6.6
2.3		0.7 < LOD		0.03 < LOD		0.03 < LOD	1.05
1.38		0.7 < LOD		0.03 < LOD		0.03 < LOD	0.9
4.98		0.7 < LOD		0.06 < LOD		0.06 < LOD	1.05
2.02		0.7 < LOD		0.03 < LOD		0.03 < LOD	0.75
7.65		0.7 < LOD		0.05 < LOD		0.05 0.5	0.3
1.08		0.7 1.6		0.8 1.6		0.8 < LOD	4.5



**Kernersville, NC 27284**  
**PHONE: (336) 992-1025**  
**FAX: (336) 992-4175**

**EMSL Order Number** (Lab Use Only):

Page 1 of \_\_\_\_\_ pages

Reset Form

Print Form



Building # 60 LECONTE

Sample Analysis

06-26-2013

Turn Around Time 24hr

Type of Analysis: Lead / Asbestos Date:

Area	Sample ID	Material Sampled	Material Location	F/NF	Cond	Quantity	Pot to Disturb
A	#1	JOINT COMPOUND	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
A	#2	JOINT COMPOUND	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
A	#3	JOINT COMPOUND	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
B	#4	SHEETROCK	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
B	#5	SHEETROCK	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
B	#6	SHEETROCK	MATH LIBRARY MIDDLE PARTITION WALLS	F	G	<1000	Low
C	#7	BROWN COVE BASE/GLUE	MATH LIBRARY MIDDLE PARTITION WALLS	NF	G	<1000	Low
C	#8	BROWN COVE BASE/GLUE	MATH LIBRARY MIDDLE PARTITION WALLS	NF	G	<1000	Low
C	#9	BROWN COVE BASE/GLUE	MATH LIBRARY MIDDLE PARTITION WALLS	NF	G	<1000	Low
D	#10	2X2 CEILING TILE	MATH LIBRARY	F	G	<1000	Low

License # 21534

FM# 00429741

Send lab results in PDF format as soon as possible to:

Ed Pitts 803-777-3296

720 College St.

720 College St.

EHP@fmc.sc.edu

Darryl Washington 803-777-2399

720 College St.

720 College St.

WashinDH@fmc.sc.edu

Signature

Requestor

CHRIS MERGNER

Ty Russell 803-777-1208

720 College St.

720 College St.

NTRusse@fmc.sc.edu

Fax # 803-777-3990

3948

Reset Form

Print Form



Building # 60 LECONTE

## Sample Analysis

06-26-2013

Type of Analysis: Lead / Asbestos Date:

Turn Around Time 24hr

Area	Sample ID	Material Sampled	Material Location	F/NF	Cond	Quantity	Pot to Disturb
D	#11	2X2 CEILING TILE	MATH LIBRARY	F	G	<1000	Low
D	#12	2X2 CEILING TILE	MATH LIBRARY	F	G	<1000	Low
E	#13	12X12 WHITE FLOOR TILE/MASTIC	SE CORNER MATH LIBRARY	NF	G	<1000	Low
E	#14	2X12 WHITE FLOOR TILE/MASTIC	SW CORNER MATH LIBRARY	NF	G	<1000	Low
E	#15	2X12 WHITE FLOOR TILE/MASTIC	NW CORNER MATH LIBRARY	NF	G	<1000	Low
F	#16	BLACK COVE BASE/GLUE	N WALL MATH LIBRARY	NF	G	<1000	Low
F	#17	BLACK COVE BASE/GLUE	S WALL MATH LIBRARY	NF	G	<1000	Low
F	#18	BLACK COVE BASE/GLUE	N WALL MATH LIBRARY	NF	G	<1000	Low
G	#19	JOINT COMPOUND	E WALL MATH LIBRARY	F	G	2500 SQ FT	Low
G	#20	JOINT COMPOUND	W WALL MATH LIBRARY	F	G	2500 SQ FT	Low

License # 21534

FM# 00429741

Signature

Requestor CHRIS MERGNER

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Reset Form

Print Form

3948



Building # 60 LECONTE

## Sample Analysis

06-26-2013

Turn Around Time 24hr

Type of Analysis: Lead / Asbestos Date:

Area	Sample ID	Material Sampled	Material Location	F/NF	Cond	Quantity	Pot to Disturb
G	#21	JOINT COMPOUND	NE WALL MATH LIBRARY	F	G	2500 SQ FT	Low
G	#22	JOINT COMPOUND	NWWALL MATH LIBRARY	F	G	2500 SQ FT	Low
G	#23	JOINT COMPOUND	SW WALL MATH LIBRARY	F	G	2500 SQ FT	Low
G	#24	JOINT COMPOUND	SW WALL MATH LIBRARY	F	G	2500 SQ FT	Low
G	#25	JOINT COMPOUND	N WALL MATH LIBRARY	F	G	2500 SQ FT	Low
H	#26	SHEETROCK	E WALL @ COLUMN MATH LIBRARY	F	G	2500 SQ FT	Low
H	#27	SHEETROCK	W WALL @ COLUMN MATH LIBRARY	F	G	2500 SQ FT	Low
H	#28	SHEETROCK	NE WALL @ BRICK WALL MATH LIBRARY	F	G	2500 SQ FT	Low
H	#29	SHEETROCK	NW WALL @ BRICK WALL MATH LIBRARY	F	G	2500 SQ FT	Low
H	#30	SHEETROCK	SW WALL @ BOOKCASE MATH LIBRARY	F	G	2500 SQ FT	Low

License # 21534

FM# 00429741

Signature

Requestor CHRIS MERGNER

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Fax # 803-777-3990



**Description** HAZMAT SURVEY ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO 2

<b>Site</b>	COLUMBIA	<b>Assigned To</b>	JPROVENCE
<b>Building</b>	060 LECONTE COLLEGE	<b>Crew</b>	HAZMAT
<b>Floor</b>	<b>Room:</b>	<b>Start Date</b>	<b>Priority</b> 5
<b>Equipment</b>		<b>Due date</b>	28-FEB-13
		<b>Request Date</b>	29-JAN-13 <b>by</b> CHAPMAS

<b>Request #</b>	FM00417708	<b>Description</b>	HAZMAT SURVEY ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO 2
<b>Parent WO #</b>			

<b>CP Number</b>	CP00369994	ESTIMATE TO CONVERT MATH LIBRARY IN LECONTE INTO OFFICES
------------------	------------	--

<b>State/Internal Project Number</b>	
--------------------------------------	--

<b>Requestor</b>	<b>Project Manager</b>	MERGNER, CHRISTIAN F.
<b>Telephone</b>	<b>Telephone</b>	777-4569
<b>Alternate</b>	<b>Estimated Cost</b>	\$ 1,100.00
<b>Telephone</b>	<b>Billing</b>	FIXED PRICE
<b>Non-Available Time</b>	12100-A007-52043	(ARTS & SCIENCES-FACILTIES COMMITMENTS)

**Task List**

HAZMAT SURVEY TESTING SCOPE OF WORK [FALL 2013 PROJECT]  
 THIS PROJECT WILL INCLUDE TAKING DOWN THE ENTIRE CEILING GRID AND ACCOUSTICAL CEILING TILE. REMOVAL OF THE ENTIRE EXISTING HVAC EQUIPMENT & DUCTS ABOVE THE CEILING. REMOVAL OF GYP. BD. WALLS AROUND THE PERIMETER TO REVEAL EXISTING WINDOWS, WHICH HAVE BEEN CLOSED IN THE PAST. THE COUNTERTOPS AND DRYWALL IN THE CENTER RECEPTION AREA WILL BE REMOVED [E.G. OLD MATH LIBRARY WILL BE CONVERTED INTO NEW OFFICES AND MEETING ROOMS FOR FACULTY AND STAFF].

(CHECK ALL THAT APPLY AND PROVIDE ADDITIONAL INFORMATION AS NEEDED)

HAZMAT SURVEY(S) REQUESTED FOR THE FOLLOWING

- ☐ FLOOR TILE
- ☐ JOINT COMPOUND
- ☐ WALLS
- ☐ MASTIC
- ☐ CEILING TILE
- ☐ PIPE INSULATION
- ☐ VINYL SHEET FLOORING
- ☐ FIREPROOFING
- ☐ FUME HOODS/TABLE TOPS
- ☐ ROOFING MATERIALS
- ☐ FIRE DOORS
- ☐ GASKETS/VALVES
- ☐ BOILER INSULATION
- ☐ ACOUSTICAL POPCORN CEILING
- ☐ DUCT WORK
- ☐ OTHER (PLEASE DESCRIBE BELOW)

DATE WORK STARTED	CAUSE
DATE WORK COMPLETED	CONDITION
EQUIPMENT	
CLOSING REMARKS	
BENCHSTOCK MATERIALS	
Qty	Description
	Price Per Unit

Supervisor's Approval \_\_\_\_\_

Note	Date	Title
01-JUL-13		HAZMAT SURVEY RESULTS
SURVEY DATE: 6/26/13		
INSPECTOR #: DARRYL WASHINGTON II BI-00568		
STATUS: THE FOLLOWING MATERIALS HAVE BEEN CHECKED FOR ASBESTOS AND LEAD MATERIALS RESULTS FOLLOWS		
12X12 WHITE FLOOR TILE / BLACK MASTIC - POSITIVE FOR ASBESTOS CONTAINING MATERIALS		
SHEET ROCK ( HELP DESK AREA )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
JOINT COMPOUND ( HELP DESK AREA )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
SHEET ROCK ( PERIMETER WALLS )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
JOINT COMPOUND ( PERIMETER WALLS )- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
2X2 WHITE CEILING TILE- NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
CAULKING AROUND HELP DESK - NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
COVE BASE / GLUE ( BOTH SETS ) - NEGATIVE FOR ASBESTOS CONTAINING MATERIALS		
OFF WHITE PAINT - NEGATIVE FOR LEAD BASE PAINT		
INSPECTORS NOTES:		
NO SUSPECT MATERIALS DETECTED ABOVE CEILING IN THIS LARGE SPACE. ASBESTOS BLACK MASTIC WAS DETECTED ON THE FIBERGLASS LINES ABOVE THE CEILING. ASBESTOS TSI AROCELL LINES MAY OR MAY NOT BE DETECTED ABOVE THE CEILING, INSPECTORS DID NOT LOCATE ANY OF THIS MATERIAL		
IF YOU ENCOUNTER ANY SUSPECT MATERIALS IN PLACE AND DEEM IT SUSPECT FOR ASBESTOS AND OR LEAD AND IT IS NOT LISTED ABOVE PLEASE STOP WORK AND CALL THE ASBESTOS PROGRAM MANAGER FOR FURTHER TESTING OR ABATEMENT REFER TO THE SURVEY RESULTS DOCUMENT ATTACHED TO THE WO FOR DETAILED INFORMATION.		
02-APR-04		ASBESTOS MAY BE PRESENT IN THIS BUILDING
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BLDG 060                   LECONTE		
BASEMENT- HOT WATER GENERATOR ı 32 SQ. FT.		
BASEMENT - HOT WATER MECHANICAL RM AND HALLWAYS 386 LIN FT.		
MECHANICAL RM 216 --> ABOVE CEILING IN CRAWL SPACE AT ROOM 9B   [860 LIN. FT.]		
BASEMENT MECHANICAL RM / IN PIPE CHASE ON EACH FLOOR --> CHILL WATER ELBOWS   [56 LIN. FT.]		
BASEMENT MECH. ROOM ---> PIPE CHASE CHILL WATER VALVE & FLANGE   [78 SQ. FT.]		
MECH. ROOM, ATTIC --> STEAM LINE, PIPE CHASE   [162 LIN. FT.]		
ATTIC ABOVE CEILINGS --> PIPE TRANSIT   [1000 LIN. FT.]		
THE FOLLOWING COMMON TYPES OF BUILDING COMPONENTS COULD CONTAIN MATERIALS THAT, WHEN DISTURBED, MIGHT EXPOSE		

YOU TO ASBESTOS:

1. FLOOR TILE
2. PIPE INSULATION
3. BLACK MASTIC
4. HVAC DUCT MASTIC
5. SPRAYED-ON FIREPROOFING
6. SPRAYED-ON CEILINGS
7. SHEETROCK JOINT COMPOUND

BEFORE DISTURBING THESE TYPES OF COMPONENTS, CONFIRM THAT THEY DO NOT CONTAIN ASBESTOS AND TAKE PROPER PRECAUTIONS AT ALL TIMES

**09-AUG-10 2009-08-19 BLDG COMPONENT ASBESTOS/LEAD EXPOSURE UPDATE**

BELOW ARE THE ASBESTOS AND LEAD TESTING RESULTS FOR LECONTE COLLEGE:

SHEET ROCK: NEGATIVE ASBESTOS CONTAINING MATERIALS

JOINT COMPOUND: POSITIVE FOR ASBESTOS CONTAINING MATERIALS

2X2 WHITE CEILING TILE: NEGATIVE FOR ASBESTOS CONTAINING MATERIALS

IN THIS BUILDING THERE ARE NUMEROUS AMOUNTS OF TILE IN DIFFERENT SIZES AND COLORS

THROUGHOUT THE BUILDING THAT CONTAIN ASBESTOS. THE BLACK MASTIC HOLDING

IT IN PLACE CONTAINS ASBESTOS AND THE STATE OF COLOR OF THE MATERIAL IS BLACK.

THERE ARE LINES ABOVE THE CEILING THAT HAVE BLACK MASTIC HOLDING IT TOGETHER AT THE

JOINTS AND THERE IS HARD 4 INCH LINES (WHITE IN COLOR) THAT THE TSI (INSULATION)

CONTAINS ASBESTOS

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**EMSL Analytical, Inc.**

706 Gralin Street, Kernersville, NC 27284

Phone/Fax: (336) 992-1025 / (336) 992-4175

[greensborolab@emsl.com](mailto:greensborolab@emsl.com)

EMSL Order: 021303948

CustomerID: UNSC62

CustomerPO:

ProjectID:

Attn: **Darryl Washington**  
**University of South Carolina**  
**743 Greene Street**  
**Columbia, SC 29208**

Phone: (803) 777-7000  
Fax: (803) 777-3990  
Received: 06/27/13 10:00 AM  
Analysis Date: 6/27/2013  
Collected:

Project: **60 Leconte/Math Lib**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
1 021303948-0001	Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
2 021303948-0002	Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
3 021303948-0003	Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (other)	None Detected
4 021303948-0004	Sheetrock	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (other)	None Detected
5 021303948-0005	Sheetrock	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (other)	None Detected
6 021303948-0006	Sheetrock	Brown/Gray Fibrous Heterogeneous	5% Cellulose 1% Glass	94% Non-fibrous (other)	None Detected
7-Cove Base 021303948-0007	Cove Base/Glue	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
7-Mastic 021303948-0007A	Cove Base/Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

Analyst(s)

Kristie Elliott (32)

Scott Combs (11)

Stephen Bennett, Laboratory Manager  
or other approved signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, Virginia 3333-000228, West Virginia LT000321

Initial report from 06/27/2013 17:26:01

**EMSL Analytical, Inc.**

706 Gralin Street, Kernersville, NC 27284

Phone/Fax: (336) 992-1025 / (336) 992-4175

[greensborolab@emsl.com](mailto:greensborolab@emsl.com)

EMSL Order: 021303948

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ProjectID:

Attn: **Darryl Washington**  
**University of South Carolina**  
**743 Greene Street**  
**Columbia, SC 29208**

Phone: (803) 777-7000  
Fax: (803) 777-3990  
Received: 06/27/13 10:00 AM  
Analysis Date: 6/27/2013  
Collected:

Project: **60 Leconte/Math Lib****Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
8-Cove Base 021303948-0008	Cove Base/Glue	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	<b>None Detected</b>
8-Mastic 021303948-0008A	Cove Base/Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	<b>None Detected</b>
9-Cove Base 021303948-0009	Cove Base/Glue	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	<b>None Detected</b>
9-Mastic 021303948-0009A	Cove Base/Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	<b>None Detected</b>
10 021303948-0010	Ceiling Tile	Tan/White Fibrous Heterogeneous	60% Cellulose	40% Non-fibrous (other)	<b>None Detected</b>
11 021303948-0011	Ceiling Tile	Tan/White Fibrous Heterogeneous	40% Cellulose 25% Min. Wool	35% Non-fibrous (other)	<b>None Detected</b>
12 021303948-0012	Ceiling Tile	Gray/Tan/White Non-Fibrous Heterogeneous	60% Cellulose	40% Non-fibrous (other)	<b>None Detected</b>
13-Top Mastic 021303948-0013	Floor Tile/Mastic	Yellow Non-Fibrous Homogeneous	<1% Cellulose <1% Synthetic	100% Non-fibrous (other)	<b>None Detected</b>

Analyst(s)

Kristie Elliott (32)

Scott Combs (11)

Stephen Bennett, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, Virginia 3333-000228, West Virginia LT000321

Initial report from 06/27/2013 17:26:01

**EMSL Analytical, Inc.**

706 Gralin Street, Kernersville, NC 27284

Phone/Fax: (336) 992-1025 / (336) 992-4175

[greensborolab@emsl.com](mailto:greensborolab@emsl.com)

EMSL Order: 021303948

CustomerID: UNSC62

CustomerPO:

ProjectID:

Attn: **Darryl Washington**  
**University of South Carolina**  
**743 Greene Street**  
**Columbia, SC 29208**

Phone: (803) 777-7000  
Fax: (803) 777-3990  
Received: 06/27/13 10:00 AM  
Analysis Date: 6/27/2013  
Collected:

Project: **60 Leconte/Math Lib****Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
13-Floor Tile 021303948-0013A	Floor Tile/Mastic	Beige Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
13-Bottom Mastic 021303948-0013B	Floor Tile/Mastic	Black Non-Fibrous Homogeneous		92% Non-fibrous (other)	8% Chrysotile
14-Top Mastic 021303948-0014	Floor Tile/Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
14-Floor Tile 021303948-0014A	Floor Tile/Mastic				Stop Positive (Not Analyzed)
14-Bottom Mastic 021303948-0014B	Floor Tile/Mastic				Stop Positive (Not Analyzed)
15-Top Mastic 021303948-0015	Floor Tile/Mastic	Orange Non-Fibrous Homogeneous	<1% Synthetic <1% Cellulose	100% Non-fibrous (other)	None Detected
15-Floor Tile 021303948-0015A	Floor Tile/Mastic				Stop Positive (Not Analyzed)
15-Bottom Mastic 021303948-0015B	Floor Tile/Mastic				Stop Positive (Not Analyzed)

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Collected:

Project: **60 Leconte/Math Lib**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
16-Cove Base 021303948-0016	Cove Base/Glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
16-Mastic 021303948-0016A	Cove Base/Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
17-Cove Base 021303948-0017	Cove Base/Glue	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
17-Mastic 021303948-0017A	Cove Base/Glue	Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
18-Cove Base 021303948-0018	Cove Base/Glue	Gray/Black Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
18-Mastic 021303948-0018A	Cove Base/Glue	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
19 021303948-0019	Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
20 021303948-0020	Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

Analyst(s)

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Initial report from 06/27/2013 17:26:01

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Phone: (803) 777-7000  
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Received: 06/27/13 10:00 AM  
Analysis Date: 6/27/2013  
Collected:

Project: **60 Leconte/Math Lib**

### Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
21 021303948-0021	Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
22 021303948-0022	Joint Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
23 021303948-0023	Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
24 021303948-0024	Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
25 021303948-0025	Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (other)	None Detected
26 021303948-0026	Sheetrock	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
27 021303948-0027	Sheetrock	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (other)	None Detected
28 021303948-0028	Sheetrock	Gray Fibrous Heterogeneous	1% Cellulose 1% Glass	98% Non-fibrous (other)	None Detected

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Phone: (803) 777-7000  
Fax: (803) 777-3990  
Received: 06/27/13 10:00 AM  
Analysis Date: 6/27/2013  
Collected:

Project: **60 Leconte/Math Lib****Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
29 021303948-0029	Sheetrock	Brown/Gray Fibrous Heterogeneous	5% Cellulose 1% Glass	94% Non-fibrous (other)	None Detected
30 021303948-0030	Sheetrock	Gray Fibrous Heterogeneous	1% Cellulose 1% Glass	98% Non-fibrous (other)	None Detected
31 021303948-0031	Sheetrock	Gray Non-Fibrous Heterogeneous	1% Cellulose 1% Glass	98% Non-fibrous (other)	None Detected
32 021303948-0032	Sheetrock	Gray Non-Fibrous Homogeneous	1% Glass <1% Cellulose	99% Non-fibrous (other)	None Detected
33 021303948-0033	Caulk	White/Beige Non-Fibrous Homogeneous	8	100% Non-fibrous (other)	None Detected
34 021303948-0034	Caulk	White/Beige Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
35 021303948-0035	Caulk	White/Beige Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Kristie Elliott (32)

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Stephen Bennett, Laboratory Manager  
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Initial report from 06/27/2013 17:26:01

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Phone: (803) 777-7000  
Fax: (803) 777-3990  
Received: 06/28/13 10:00 AM  
Analysis Date: 7/1/2013  
Collected:

Project: 60 Leconte/Math Lib

**Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM**  
**via EPA/600/R-93/116 Section 2.5.5.1**

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
9-Cove Base 021303948-0036		Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
9-Mastic 021303948-0037		Brown Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
15-Top Mastic 021303948-0038		Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
18-Cove Base 021303948-0039		Black Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
18-Mastic 021303948-0040		Brown Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
35 021303948-0041		White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (6)

Stephen Bennett, Laboratory Manager  
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Initial report from 07/01/2013 09:38:24

## **SECTION 01100 - SUMMARY**

### **PART 1 GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of the Contract.
  - 3. Work under other contracts.
  - 4. Use of premises.
  - 5. Owner's occupancy requirements.
  - 6. Work restrictions.
  - 7. Specification formats and conventions.
- B. Related Sections include the following:
  - 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

#### **1.3 WORK COVERED BY CONTRACT DOCUMENTS**

- A. Project Identification: LeConte Math Library Renovation
  - 1. Project Location: 3<sup>rd</sup> Floor, LeConte Columbia, SC 29208
- B. Owner: University of South Carolina
  - 1. Owner's Representative: Christian Mergner, Project Manager
- C. Architect: Compass 5 Partners, LLC, 1329 State Street Cayce, SC 29033.
  - 1. Architect's Representative: Maryellyn Cannizzaro, AIA
- D. The Work consists of the following:
  - 1. The project scope includes the renovation of +-4400sf to create an area for faculty offices on the third floor of LeConte. Work includes limited demolition, new partitions, ceiling, casework, finishes and supporting mechanical and electrical.
- E. Resources
  - 1. The bidders and selected contractor shall refer to Compass 5 Partners, LLC contract documents.
- F. Obtain Contract Documents

1. Contract Documents will be available through the USC purchasing website. All questions throughout the bidding period shall be directed to Maryellyn Cannizzaro in writing.

#### 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

#### 1.5 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on other contracts, if concurrent, may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

#### 1.6 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "Master Format" numbering system.
  1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

#### 1.7 MISCELLANEOUS PROVISIONS

- A. By execution of this Contract, Contractor acknowledges review of proposed details and specifications and agrees to provide warranties and bonds for products and systems

specified herein, detailed on drawings and as approved as a substituted or equal product or system in accordance with Division 1 Section "Product Requirements".

- B. No material containing asbestos shall be used in the construction of this project or incorporated into the completed work. Contractor shall provide certification that the new building addition is asbestos free at the completion of construction, as required in Division 1 Section "Closeout Procedures".

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

**PART 3 - EXECUTION (Not Used)**

END OF SECTION

## SECTION 01140 WORK RESTRICTIONS

### PART 1 GENERAL

#### 1.1 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
  - 1. Limits: Confine constructions operations to work areas indicated and other areas as directed. Do not use Owners toilet rooms or other facilities unless authorized prior to use.
  - 2. Owner Occupancy: Allow for Owner occupancy of site at all times.
  - 3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to the Owner and Owner's employees at times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize use of driveways and entrances. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Parking is allowable only in designated areas as confirmed with the Owner's Project Manager and are subject to change.
- C. Deliveries: Provide representative to receive all materials and offload at the job site. The Owner will refuse all deliveries to other locations.
- D. Burning/Welding Operations: Comply with Owners requirements related to Burning and Welding permits. Coordinate turning off of fire/smoke detection systems in affected areas. Contractor shall be responsible for Fire Department response fees related to construction operations.
- E. Use of Existing Building: Maintain existing building in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.
- F. Use of Owner Equipment and Supplies: Contractor and contractor's personnel may not use Owner equipment or supplies in the course of the Work.
- G. Contractor shall maintain emergency egress exit route including existing fire stairs for all occupants during construction. Contractor shall maintain clearly marked exit routes on all floors at all times.

H. Access to Building and Storage:

1. Contractor will be permitted to bring workmen, material, equipment, etc., into building through Owner-designated entrance and stairway.
2. Material shall arrive on site only as they are needed and immediately delivered to construction area.
3. Supplies, equipment and materials to be delivered to construction area in closed containers sized to be conveniently transported through existing corridors and door openings.
4. Contractor shall remove all waste material via same route.
5. Debris, trash and unused materials may not be transported through existing occupied spaces.

1.2 MANNER OF CONDUCT OF THE WORK

- A. Existing building will be occupied during construction. Work shall be done, and such temporary facilities provided, so as not to interfere with daily operation of building or any essential service thereof.
- B. Noisy operations, such as drilling, etc., shall be restricted by Owner to avoid disruption of daily activities. Schedule of Operations shall be approved by Owner.
- C. No jack hammering will be allowed unless written permission is received from Owner. All holes will be core drilled using a diamond core drill.
- D. Cell phones are allowed unless otherwise prohibited by the Owner in areas where they may disrupt patient care delivery.
- E. No radios, smoking or foul language will be allowed in building.
- G. Responsibility for enforcing coordination requirements and close adherence to time schedule rests solely with general contractor.

1.3 SAFETY:

- A. Safety and security: Comply with Owner's requirements related to security and fire drills and alerts.

- B. All contractors are required to comply with regulations of the Owner.
- C. The Contractor is responsible for maintaining a Material Safety Data Sheet (MSDS) Book at the construction site that is easily accessible and available upon request at any time. The MSDS Book must contain the most current MSDS for all chemicals or substances used by the Contractor or sub-contractors during work performed.

#### 1.4 WORK SCHEDULE

- A. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner's goal usage. Perform the Work so as not to interfere with Owner's operations.
  - 1. Work hours: 7:00 am to 5:00 pm, Monday through Friday. Work at other times may be allowed with prior consent of Owner.
  - 2. A dedicated Site Superintendent shall be on site during working hours.
  - 3. Superintendent shall be available by cell phone or pager twenty-four hours a day, seven days a week.
  - 4. He shall advise Owner's authorities of his intended work schedule and obtain their approval.
- B. The Owner reserves the right to direct Contractor to stop work temporarily.
- C. Prior to demolition of any utility system, electrical, mechanical, and plumbing, the Contractor shall request approval and verification from the Owner.

#### 1.5 WORK REQUIRING OWNER'S APPROVAL

- A. Present all requests for shut-down or interruption of existing services for approval by the Agency not less than ten (10) working days before proposed work is scheduled to be done. Do not proceed without written approval of scheduled activity.
- B. Schedule interruptions and shut-downs for nights and weekends, whenever possible.
- C. The following activities require Owner's prior approval:

1. Electrical or mechanical work that may interfere with the operation of other areas or systems of the facility.
2. Shutdown of fire alarm system.
3. Work outside of the construction limits.
4. Work in other areas of the building that is necessary to gain access to electrical or mechanical systems.

PART 2 -PRODUCTS (Not Used)

PART 3 -EXECUTION (Not Used)

END OF SECTION

## SECTION 01250 -CONTRACT MODIFICATION PROCEDURES

### PART 1 -GENERAL

#### 1.1 SUMMARY

- A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. See Division 1 Section "Allowances" for procedural requirements for handling and processing allowances, if any.

#### 1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract time.

#### 1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by the Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within 21 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract time necessary to execute the change. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract time.
5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709.

#### 1.4 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, if Work includes allowances, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Owner reserves the right to establish the quantity of work-In-place by independent quantity survey, measure, or count.

- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.
  - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  - 2. No change to Contractor's indirect expense is permitted for selection of higher-or lower priced materials or systems of the same scope and nature as originally indicated.

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on OSE480.

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2-PRODUCTS (Not Used)

PART 3-EXECUTION (Not Used)

END OF SECTION

## SECTION 01290 -PAYMENT PROCEDURES

### PART 1 -GENERAL

#### 1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process an Application for Payment.

#### 1.2 DEFINITIONS

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

#### 1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:  
Application for Payment forms with Continuation Sheets,  
Submittals Schedule, Contractor's Construction Schedule.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values.
  - 1. Identification: Include the following Project identification on the Schedule of Values:  
Project name and location.  
Name of Architect.  
Architects project number.  
Contractor's name and address.  
Date of submittal.
  - 2. Submit draft of AIA Document G703 Continuation Sheets.

3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:  
Related Specification Section or Division.  
Description of the Work.  
Name of subcontractor.  
Name of manufacturer or fabricator.  
Name of supplier.  
Change Orders that affect value.  
Dollar value.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Include a Coordination Documents valuation as a line item in the Schedule of Values for development and implementation of coordination documents directly related to mechanical, electrical, plumbing, fire protection and architectural portions of the work.
9. Include a closeout valuation as a line item in the Schedule of Values for closeout activities in the Work.

10. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the Schedule of Values and Contractors Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

3. Include construction progress photos corresponding to the period of work represented by the Application for Payment.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's Lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
  2. When an application shows completion of an item, submit final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of Values.
  3. Contractors Construction Schedule.
  4. Products list.

5. Schedule of unit prices.
  6. Submittals Schedule.
  7. List of Contractor's staff assignments.
  8. List of Contractors principal consultants.
  9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  10. Initial progress report.
  11. Report of preconstruction conference.
  12. Progress draft of Coordination Drawings.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is Substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Submittals that must precede or coincide with submittal of Application for Payment at Substantial Completion include the following:
1. Operation and Maintenance Data final submittal.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of project closeout requirements. (Refer to Section 01770 -Close-out Procedures.)

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims.
5. AIA Document G706A, Contractors Affidavit of Release of Liens.
6. AIA Document G707, Consent of Surety to Final Payment.
7. Evidence that any and all claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 -PRODUCTS (Not Used)

PART 3 -EXECUTION (Not Used)

END OF SECTION

## SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 -GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
  - 4. Requests for Information (RFIs).
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for preparing and submitting Coordination Drawings.
  - 2. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 3. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 4. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI Request from Contractor seeking information or clarification of the Contract Documents.

#### 1.4 GENERAL COORDINATION

- A. Coordination: Coordinate instruction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in

different Sections, that depend on each other for proper installation, connection, and operation.

- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's Construction Schedule.
  - 2. Preparation of the Schedule of Values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Pre-installation conferences.
  - 7. Project closeout activities.
  - 8. Startup and adjustment of systems.
  - 9. Project closeout activities.

## 1.5 COORDINATION OF MECHANICAL AND ELECTRICAL WORK

- A. Coordinate location of mechanical, electrical, fire suppression and other Work shown diagrammatically on Contract Documents, including Work under other Contracts and Work by Owner. Maintain dimensions and clearances indicated on Drawings.
- B. Meet with subcontractors, Owner and other contractors, as applicable to the location of the Work, to develop procedures for preparation of Coordination Drawings.
- C. Prepare and submit Coordination Drawings that fully layout mechanical, electrical, fire suppression and other Work to coordinate and resolve material placement conflicts and plan utilization of limited space.
- D. If conflicts cannot be resolved, advise Architect and Owner and submit RFI or Proposal Request for changes in Contract Documents which may be required to accommodate the Work.

## 1.6 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings to show limited space availability and maximum utilization of space for efficient installation of different components and as Coordination is required for installation of products and materials fabricated by separate entities.
1. Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate required installation sequences.
    - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
    - d. Indicate loads and reactions at connections to building structure and to other components of exterior cladding.
  2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
  3. Number of Copies: Submit three opaque copies of each submittal. Architect will return two copies. Mark up and retain one returned copy as a Project Record Drawing.
  4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
  5. Coordination Drawings are not Shop Drawings but a means of fulfilling Contractor's responsibility to coordinate the work.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit to Owner, and Architect a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers.

Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

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

#### 1.7 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

#### 1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated. The Superintendent shall represent the General Contractor at Project Meetings.
  1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location.
  1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor, and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the Conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Critical work sequencing and long-lead items.

- c. Designation of key personnel and their duties.
- d. Distribution of the Contract Documents.
- d. Submittal procedures.
- e. Procedures for processing field decisions and Change Orders.
- f. Procedures for RFIs.
- g. Procedures for testing and inspecting.
- h. Procedures for processing Applications for Payment.
- i. Preparation of Record Documents.
- j. Use of the premises and existing building.
- k. Work restrictions.
- l. Owner's occupancy requirements.
- m. Responsibility for temporary facilities and controls.
- n. Construction waste management and recycling.
- o. Parking availability.
- p. Office, work, and storage areas.
- q. Equipment deliveries and priorities.
- r. First aid.
- s. Security.
- t. Progress cleaning.
- u. Working hours.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
- 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
  - a. The Contract Documents.
  - b. Options.
  - c. Related RFIs.
  - d. Related Change Orders.
  - e. Purchases.
  - f. Deliveries.
  - g. Submittals.
  - h. Review of mockups.
  - i. Possible conflicts.
  - j. Compatibility problems.
  - k. Time schedules.

- l. Weather limitations.
  - m. Manufacturer's written recommendations.
  - n. Warranty requirements.
  - o. Compatibility of materials.
  - p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
- 1. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 2. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to restore impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that

current and subsequent activities will be completed within the Contract Time.

1. Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
  1. Interface requirements.
  2. Sequence of operations.
  3. Status of submittals.
  4. Deliveries.
  5. Off-site fabrication.
  6. Access.
  7. Site utilization.
  8. Temporary facilities and controls.
  9. Work hours.
  10. Hazards and risks.
  11. Progress cleaning.
  12. Quality and work standards.
  13. Status of correction of deficient items.
  14. Field observations.
  15. RAs.
  16. Status of proposal requests.
  17. Pending changes.
  18. Status of Change Orders.
  19. Pending claims and disputes.
  20. Documentation of information for payment requests.
3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting within 3 days to each party present and to parties who should have been present.
  - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. User Group Meetings: Contractors superintendent shall attend weekly user meetings to coordinate installations, shutdowns, and impact to user areas. Owner shall publish meeting minutes.
- F. Major Sub-contractors shall attend the regularly scheduled project meetings where the Owner is in attendance.

## 2.0 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RA to Architect through Construction Manager in the form specified.
  - 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
  - 1. Project name.
  - 2. Date.
  - 3. Name of Contractor.
  - 4. Name of Architect.
  - 5. RFI number, numbered sequentially.
  - 6. Specification Section number and title and related paragraphs, as appropriate.
  - 7. Drawing number and detail references, as appropriate.
  - 8. Field dimensions and conditions, as appropriate.
  - 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  - 10. Contractor's signature.
  - 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
    - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references,

and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: CSI Form 13.2A.

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
  - a. Requests for approval of submittals.
  - b. Requests for approval of substitutions.
  - c. Requests for coordination information already indicated in the Contract Documents.
  - d. Requests for adjustments in the Contract Time or the Contract Sum.
  - e. Requests for Interpretation of Architects actions on submittals.
  - f. Incomplete RFIs or RFIs with numerous errors.
2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures".
  - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log with Application for Payment. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Changes in the Work, Construction Change Directive, and Proposal Request, as appropriate.

## 2.1 CONTINUAL AND REGULAR UPDATING OF PROJECT RECORD CONTRACT DOCUMENTS

- A. The Contractor shall maintain and regularly update the Project Record Set of Contract Documents which will be reviewed at progress meetings.

PART 2 -PRODUCTS (Not Used)

PART 3 –EXECUTION (Not Used)

END OF SECTION

## SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Field condition reports.
  - 7. Material recycling reports.
  - 8. Special reports.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor activity is an activity that must be completed before a given activity can be started.

- B. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- C. Event: The starting or ending point of an activity.
- D. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time belongs to Owner.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- E. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- F. Major Area: A story of construction, a separate building, or a similar significant construction element.
- G. Milestone: A key or critical point in time for reference or measurement.
- H. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

#### 1.4 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Submittals Schedule: Submit three 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. Sequence of finishes work.
  - 7. Scheduled date for Architect's final release or approval.
- C. Preliminary Construction Schedule: Submit two printed copies; one a single sheet of reproducible media, and one a print.

- D. Preliminary Network Diagram: Submit two printed copies; one a single sheet of reproducible media, and one a print; large enough to show entire network for entire construction period.
- E. Contractor's Construction Schedule: Submit two printed copies of initial schedule, one a reproducible print and one a blue- or black-line print, large enough to show entire schedule for entire construction period.
  - 1. Submit an electronic copy of schedule in .pdf format. Electronic copy shall be labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- F. Daily Construction Reports: Submit two copies at weekly intervals.
- G. Material Location Reports: Submit two copies at weekly intervals.
- H. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- I. Special Reports: Submit two copies at time of unusual event.

## 1.5 QUALITY ASSURANCE

- A. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Verify availability of qualified personnel needed to develop and update schedule.
  - 3. Discuss constraints, including area separations, interim milestones.
  - 4. Review delivery dates for Owner-furnished products.
  - 5. Review schedule for work of Owner's separate contracts.
  - 6. Review time required for review of submittals and resubmittals.
  - 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 8. Review time required for completion and startup procedures.
  - 9. Review and finalize list of construction activities to be included in schedule.
  - 10. Review submittal requirements and procedures.
  - 11. Review procedures for updating schedule.
- B. Fire Alarm Testing and Data Coordination: The Contractor is responsible for ensuring all life safety devices are tested and operating per design as part of substantial completion.
- C. Concrete Curing and Floor Installation Planning: The Contractor shall review methods, procedures and manufacturer's recommendations to expedite and facilitate the critical

path schedule as affected by the cure time of concrete and related floor underlayment systems.

## 1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

## PART 2 - PRODUCTS

### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary construction schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
    - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

### 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
  4. Startup and Testing Time: Include not less than two days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  2. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.
    - f. Provisions for future construction.
    - g. Seasonal variations.
    - h. Sustainable construction practices.
    - i. Environmental control.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- E. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.

- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.

## 2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for commencement of the Work.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

## 2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  - 1. List of subcontractors at Project site.
  - 2. List of separate contractors at Project site.
  - 3. Approximate count of personnel at Project site.
  - 4. High and low temperatures and general weather conditions.
  - 5. Accidents.
  - 6. Meetings and significant decisions.
  - 7. Recycled products and waste removal.
  - 8. Unusual events (refer to special reports).
  - 9. Stoppages, delays, shortages, and losses.
  - 10. Meter readings and similar recordings.
  - 11. Emergency procedures.
  - 12. Orders and requests of authorities having jurisdiction.
  - 13. Change Orders received and implemented.
  - 14. Construction Change Directives received.
  - 15. Services connected and disconnected.
  - 16. Equipment or system tests and startups.
  - 17. Partial Completions and occupancies.
  - 18. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report. Submit with a request for information on CSI Form 13.2A. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include and track delivery, coordination and installation of any and all Owner furnished materials and/or equipment.
  - 3. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 4. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01320

## SECTION 01330 -SUBMITTAL PROCEDURES

### PART 1-GENERAL

#### 1.1 SUMMARY

- A. This section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

#### 1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

#### 1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each Submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 1 section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.

1. Initial Review: Allow 15 days for initial review of each submittal unless otherwise indicated. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Allow 15 days for processing each resubmittal.
  4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architects Consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractors review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken;
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Unique identifier, including revision number.
    - i. Number and title of appropriate Specification section.
    - j. Drawing number and detail references, as appropriate.
    - k. Other necessary identification.

- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
  - 1. Do not submit additional copies for maintenance manuals.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
  - 1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
  - 2. Transmittal Form: Use AIA Document G810, CSI Form 12.1A, or other form acceptable to Architect.
  - 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
  - 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked Approved, Approved as noted or No exceptions taken.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

## PART 2 -PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  - 1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Submit four copies of submittal for portions of work designed by consulting design professionals. Architect will return two copies. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
  - 1. Do not submit product data unless specifically required.
  - 2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
  - 3. Mark each copy of each submittal to show which products and options are applicable.
  - 4. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Manufacturer's catalog cuts.
    - e. Standard or custom color charts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Compliance with recognized trade association standards.
    - j. Compliance with recognized testing agency standards.
    - k. Standard product operating and maintenance manuals.
    - l. Application of testing agency labels and seals.
    - m. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
  - 1. Preparation: Include the following information, as applicable;
    - a. Dimensions.

- b. Identification of products.
  - c. Fabrication and installation drawings.
  - d. Roughing-in and setting diagrams.
  - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
  - f. Shopwork manufacturing instructions.
  - g. Templates and patterns.
  - h. Schedules.
  - i. Design calculations.
  - j. Compliance with specified standards.
  - k. Notation of coordination requirements.
  - l. Notation of dimensions established by field measurement.
  - m. Relationship to adjoining construction clearly indicated.
  - n. Seal and signature of professional engineer if specified.
  - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Samples: Prepare physical units of materials or products, including the following:
- 1. Comply with requirements in Division 1 section "Quality Requirements" for mockups.
  - 2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Submit two full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  - 3. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and furnished in manner Specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials;

complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned.
  4. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architects sample where so indicated. Attach label on unexposed side.
  5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed. Submit samples requiring selection at same time.
  6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
- F. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product.
  2. Number and name of room or space.
  3. Location within room or space.
  4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return two copies.
    - a. Mark up and retain one returned copy as a Project Record Document.
- G. Delegated-Design Submittal: Comply with requirements in Division 1 section "Quality Requirements."
- H. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- I. Application for Payment: Comply With requirements in Division 1 Section "Payment Procedures."

- J. Schedule of Values: Comply with requirements of Division 1 Section "Payment Procedures."
- K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification sections.
  - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  - 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Product certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- K. Reid Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard forms indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project
- N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 section "Closeout Procedures."
- O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures

for installing or operating a product or equipment. Include name of Product and name, address, and telephone number of manufacturer.

- Q. Manufacturer's Reid Reports: Prepare written information documenting factory-authorized service representative's tests and inspections.
- R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Construction Photographs: Comply with requirements in Division 1 section "Construction Progress Documentation."

## 2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

## PART 3-EXECUTION

### 3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification

Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return It if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents will not be reviewed and may be discarded.
- F. List of Specification sections requiring submittals.

END OF SECTION

## SECTION 01400 – QUALITY REQUIREMENTS

### PART 1 -GENERAL

#### 1.1 SUMMARY

- A. This section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These service; do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specified test, inspections, and related actions do not limit Contractor's quality control procedures that facilitate compliance with the Contract Document requirements.
  - 2. Requirements for Contractor's to provide quality-control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this section.
- C. See Divisions 2 through 16 sections for specific test and inspection requirements.

#### 1.2 DEFINITIONS

- A. Quality-Assurance services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specially for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

### 1.3 REGULATORY REQUIREMENTS

- A. Copies of Regulations: Obtain copies of the applicable regulations and retain at Project site to be available for reference by parties who have a reasonable need.

## 1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

## 1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation *of* test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.6 QUALITY ASSURANCE

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 producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. 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 products that are similar to those indicated for this Project in material, design, and extent.
- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary laboratory Accreditation Program.
- 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.
- H. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
  - 1. Contractor responsibilities include the following:

- a. Provide test specimens representative of proposed products and construction.
  - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
  - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
  - d. Build site-assembled test assemblies and mock-ups using installers who will perform same tasks for Project.
  - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
  - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mock-ups do not reuse products on Project.
2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  1. Build mockups 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 mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mock-ups when directed, unless otherwise indicated.

## 1.7 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
  - 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  - 2. Notify testing agendas at least: 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  - 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  - 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment Installation, Including service connections. Report results in writing.

- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality control service through Contractor
  4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
  5. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field-curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
  2. Do not install finishes until required inspection of concealed construction is completed and work approved.
    - a. Coordinate in-wall and above-ceiling inspection by authorities having jurisdiction and observation by Architect.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies and each party involved in performance of portions of the Work where tests and inspections are required.
- I. Special Tests and Inspections: Owner will engage a Qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and Inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

## PART 2-PRODUCTS (Not Used)

## PART 3-EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
  1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

### 3.2 ABOVE-CEILING INSPECITONS

- A. Prior to installation of ceiling systems, Architect will conduct an above ceiling completion inspection. The purpose of this inspection is to verify:
  1. Suspended ceiling system and seismic support are complete.
  2. Electrical work above ceiling is complete.
  3. HVAC work above ceiling is complete.
  4. Insulation, fireproofing and firestopping (where applicable) above ceiling are complete.
  5. Fire and smoke rated construction above ceiling is satisfactory.
  6. Fire rated construction designations marked above ceilings are satisfactory.
  7. That all above ceiling work is complete to the status where only service or maintenance type work remains to be done above the

ceiling. Architect may designate sections of the project to be inspected a may require 100% prior to performing the inspection.

- B. Following inspection by Owner and Architect will perform an above ceiling inspection to verify compliance.

### 3.3 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Comply with the Contract Document requirements for Division 1 section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality control services.

END OF SECTION

## SECTION 01500 -TEMPORARY FACILITIES AND CONTROLS

### PART 1 –GENERAL

#### 1.1 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
  - 2. Heating and cooling facilities.
  - 3. Ventilation.
  - 4. Electric power service.
  - 5. Lighting.
  - 6. Telephone service.
- C. Support facilities include, but are not limited to, the following:
  - 1. Project identification and temporary signs.
  - 2. Waste disposal facilities.
  - 3. Temporary elevator usage.
  - 4. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Environmental protection.
  - 2. Dust control.
  - 3. Pest control.
  - 4. Security enclosure and lockup.
  - 5. Barricades, warning signs, and lights.
  - 6. Fire protection.

#### 1.2 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
  - 1. Owner's construction forces.
  - 2. Occupants of Project.

3. Architect.
  4. Testing agencies.
  5. Personnel of authorities having jurisdiction.
- B. Water service: Use water from Owner's existing water system without metering and without payment of use charges.
- C. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.
- D. Electric Power service: Pay metered electric power service use charges for electricity used by all entities engaged in construction activities at Project site.

### 1.3 SUBMITTALS

- A. Temporary Utility Reports: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within 15 days of date established for submittal of Contractor's Construction Schedule, submit a schedule indicating implementation and termination of each temporary utility.
- C. Proposed Dust-and Noise-Control Measures: Submit statement and drawings that indicate the measures proposed for infection, dust and noise control, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.

### 1.4 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
  2. Electric service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- C. Construction Waste Management: Contractor is encouraged to use means available to divert to greatest extent possible and economically feasible, construction and demolition waste from landfills and incinerators. Contractor and subcontractors are encouraged to establish a construction waste management program that addresses the following:

1. Minimizing packaging waste.
2. Salvage and reuse.
3. Salvage for resale or donation.
4. Recycling.
5. Disposal.

## 1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
1. Keep temporary services and facilities clean and neat.
  2. Relocate temporary services and facilities as required by progress of the Work.
- B. 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.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular type panels with tapered edges. Comply with ASTM C 36.
- C. Paint: Comply with requirements in Division 9 section "Painting."
- D. Water: Potable.

## 2.2 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of tire exposure.
- C. Self-contained Toilet Units: Single-occupant units of chemical, aerated recirculation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Heating Equipment: Unless Owner authorizes use of permanent heating system/provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.
- E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110-to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

## PART 3 -EXECUTION

### 3.1 INSTALLATION GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

- 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- 2. Provide adequate capacity at each stage of construction.

- B. Water service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

- 1. Provide rubber hoses as necessary to serve Project site.

- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

- 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
- 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  - a. Provide safety showers, eyewash fountains, and similar facilities where required by authorities having jurisdiction.
- 3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.

- D. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- E. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
  - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- G. Telephone Service: Provide temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities. Install separate telephone line for each field office and first-aid station.
  - 1. At each telephone, post a list of important telephone numbers.
  - 2. Provide voice-mail service on superintendent's telephone.
  - 3. Provide a portable cellular telephone for superintendent's use in making and receiving telephone calls when away from field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
  - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

- B. Temporary Signage: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform staff and building occupants and to provide directional information to construction personnel. Do not permit installation of unauthorized signs.
- C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
  - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
- D. Janitorial Services: Provide janitorial services on a daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.
- E. ~~Existing Elevator Usage: Refer to Division 1 Section "Work Restrictions".~~
- F. Existing Stair Usage: Refer to Division 1 Section "Work Restrictions".

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- 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 noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
  3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
  5. Where temporary wood or plywood enclosure exceeds 100 sq. ft. in area, use fire-retardant treated material for framing and main sheathing.
- D. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Field Offices: Class A stored-pressure water-type extinguishers.
    - b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
    - c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.
  1. Store combustible materials in containers in fire-safe locations.
  2. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other areas routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
  3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

4. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
5. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
6. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, does not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed

because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

## SECTION 01600 –PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section includes administrative and procedural requirements for selection of products for use in Project; product delivery storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Divisions 2 through 28 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "products" includes the terms "material" "equipment" "system" and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product Substitution to have the indicated qualities related to type, function, dimension in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design" including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

### 1.3 SUBMITTALS

- A. Product List: Submit a list, in tabular form showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
2. Form: Tabulate information for each product under the following column headings:
  - a. Specification Section number and title.
  - b. Generic name used in the Contract Documents.
  - c. Proprietary name, model number, and similar designations.
  - d. Manufacturer's name and address.
  - e. Projected delivery date or time span of delivery period.
  - f. Identification of items that require early submittal approval for scheduled delivery date.
3. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
4. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.

- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specifications Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form provided in this project manual.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
  - a. Statement indicating why specified material or product cannot be provided.
  - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
  - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Use of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction, where available for type of material proposed.
  - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract time. If specified product or method of construction cannot be provided within the Contract time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
  - j. Cost information, including a proposal of change, if any, in the Contract Sum.
  - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
  - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
  - a. Form of Acceptance: Change Order.
  - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification section number and title and Drawing numbers and titles.
  1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 1 Section "Submittal Procedures".
    - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures". Show compliance with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project; product selected shall be compatible with products previously selected, even if previously selected products were also options.

#### 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

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

D. Material Moisture and Mold Control: Comply with recommendations contained in Associated General Contractors (AGC) document "Managing the Risk of Mold in the Construction of Buildings." Prepare and submit plan for protecting materials from water damage, including the following:

1. Indicate delivery, checking and storage operations affected by water damage control efforts.
2. Indicate procedures for protecting porous materials from water damage, and how damaged materials will be handled.
3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet work has dried sufficiently to permit installation of related finish materials.
4. Describe protocol for dealing with large and unexpected water intrusion into completed portions of building. Indicate procedures for investigation of cause and effects, and methods for dealing with both.

## 1.6 PRODUCT WARRANTIES

- A. Warranties specified in other sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
  1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

3. Refer to Divisions 2 through 16 sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

## PART 2 -PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners and other items needed for a complete installation and Indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected" Architect will make selection.
  5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
  6. Descriptive, performance and reference standard requirements In the Specifications establish "salient characteristics" of products.
  7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions In Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product selection Procedures:

1. Product: Where specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: 'Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturer's names provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed or an unnamed product that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications Indicate Sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
  - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase lies selected from manufacturer's colors, patterns, textures or a similar phrase, select a product that complies with other specified requirements.
  - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
  - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Requests for substitution following award of contract must comply with requirements of this article and are restricted to those necessitated by the following circumstances:
  1. Specified product is no longer available for purchase.
  2. Specified product is not available within schedule requirements of project.
  3. Specified product is not compatible with other product approved for project.
  4. Specified warranty is not available.
- B. Timing: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- C. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied and so certified by Contractor.

If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested Substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

## 2.3 COMPARABLE PRODUCTS

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

Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant Qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested in Division 1 Section "Closeout Procedures."

END OF SECTION

## SECTION 01700 -EXECUTION REQUIREMENTS

### PART 1-GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This section includes general procedural requirements governing execution of the Work Including, but not limited to, the following:
  - 1. Construction layout.
  - 2. General installation of products.
  - 3. Coordination of Owner-installed products.
  - 4. Progress cleaning.
  - 5. Starting and adjusting.
  - 6. Protection of installed construction.
  - 7. Correction of the Work.

### PART 2 -PRODUCTS (Not Used)

### PART 3-EXECUTION

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of utilities and other construction indicated as existing are not guaranteed. Before beginning work investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of utilities and construction indicated as existing are not guaranteed.
- C. Acceptance of Conditions: Examine substrates areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls floors and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit: a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on Request for Information form provided in the Project Manual.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to layout the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. Building Lines and Levels: Locate and layout control lines and levels for structures, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels.

- C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Make the log available for reference by Architect.
- D. General: Layout the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

### 3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and Wiring in finished areas, unless otherwise indicated.
  - 4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.5 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
  - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
  1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, dean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject: to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 section "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

## SECTION 01731 -CUTTING AND PATCHING

### PART 1 -GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
  - 1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building.
  - 2. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.

#### 1.3 DEFINITIONS

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

#### 1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not rut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
  - 1. Primary operational systems and equipment.
  - 2. Air or smoke barriers.
  - 3. Are-suppression systems.
  - 4. Mechanical systems piping and ducts.
  - 5. Control systems.

6. Communication systems.
  7. Conveying systems.
  8. Electrical wiring systems.
  9. Operating systems of special construction in Division 13 Sections.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
1. Water, moisture, or vapor barriers.
  2. Membranes and flashings.
  3. Exterior curtain-wall construction.
  4. Equipment supports.
  5. Piping, ductwork, vessels, and equipment
  6. Noise-and vibration-control elements and systems.
- D. Protect fire-resistive material, according to advice of product manufacturer from damage resulting from cutting and patching or other causes so fire protection will be without damage or deterioration at the time of Substantial Completion.
1. As installation of other construction proceeds, inspect fire-resistive material and patch any damaged or removed areas.
  2. Repair or replace work that has not been successfully protected.
- E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the buildings aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- F. Fire-Resistive Construction: Patch fire-resistive construction in such a manner to maintain established fire rating. Refer to Division 7 sections "Through Penetration Firestop Systems" and "Fire-resistive Joint Systems".

## 1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 -PRODUCTS

### 2.1 MATERIALS

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

## PART 3-EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and Suitability of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical and Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, dosing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION

## SECTION 01732 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. Related sections include the following:
  - 1. Division 1 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
  - 2. Division 1 Section "Cutting and Patching" for cutting and patching procedures.
  - 3. Division 15 Sections for demolishing, cutting, patching, or relocating mechanical items.
  - 4. Division 16 Sections for demolishing, cutting, patching, or relocating electrical items.

#### 1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction prepare them for reuse, and reinstall them where indicated.

- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- 1.4 MATERIALS OWNERSHIP
- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- 1.5 SUBMITTALS
- A. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
  - B. Pre-demolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 section "Photographic Documentation." Submit before Work begins.
- 1.6 QUALITY ASSURANCE
- A. Demolition Firm Qualifications:
    - 1. An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
  - B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
  - C. Regulatory Requirements: Comply with governing DHEC 61-70 notification, hauling and disposal regulations before beginning selective demolition.
  - D. Standards: Comply with ANSI A10.6 and NFPA 241.
  - E. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination".
    - 1. Inspect and discuss condition of construction to be selectively demolished. Remove ceiling tiles for Inspection of above-ceiling conditions. Identify any items not shown on drawings.
    - 2. Review structural load limitations of existing structure.

3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Waste management and recycling opportunities.

F. Post-Demolition Inspection and Conference: Make arrangements with Owner's representative and Architect for a post-demolition Inspection and conference at Project site. Identify any items not shown on drawings and non-code-compliant conditions which have been uncovered by demolition. Discuss methods and procedures recommended for making such conditions code compliant.

#### 1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owners operations will not be disrupted.
  1. Comply with requirements specified in Division 1 Section "Summary."
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain fire-protection facilities in service during selective demolition operations.

## 1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

## PART 2 -PRODUCTS (Not Used)

## PART 3 -EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
  - 1. Comply with requirements specified in Division 1 Section "Photographic Documentation."
  - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work. Make permanent record of measurements, materials, and construction details required to make exact reproduction.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.2 UTILITY SERVICES AND MECHANICAL / ELECTRICAL SYSTEMS

- A. Existing services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
  - 1. Comply with requirements for existing services/systems interruptions specified in Division 1 section "Summary."
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
  - 1. Provide at least 7 days' notice to Owner if shutdown of service is required during changeover.
- C. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
    - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

### 3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Pest Control: Employ a certified, licensed exterminator to treat building and to control rodents and vermin before and during selective demolition operations.

- C. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 1 section "Temporary Facilities and Controls."
- D. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 1 Section "Temporary Facilities and Controls."
- E. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- F. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise. Refer to Section 01500 for additional requirements.

- G. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly art openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.

8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

9. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items: As indicated on Drawings.

1. Clean and repair items to functional condition adequate for intended reuse.

2. Where existing equipment and components are to be modified for relocation and reinstallation comply with requirements for new work as indicated in appropriate specification sections.

3. Paint equipment to match new equipment.

4. Pack or crate items after cleaning and repairing. Identify contents of containers.

5. Protect items from damage during transport and storage.

6. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI-WP and its Addendum.

1. Remove residual adhesive and prepare substrate for new floor coverings by one of the methods recommended by RFCI.

B. Air-Conditioning Equipment Remove equipment without releasing refrigerants

### 3.6 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
  - 1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - 1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other sections of these Specifications.
  - 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surface.
  - 3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair, or reran existing ceilings as necessary to provide an even-plane surface of uniform appearance.

### 3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevate portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Division 1 Section "Construction Waste Management."

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally disposes of them.

### 3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

## SECTION 01770 -CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning, including cleaning of HVAC system.

#### 1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, paint color schedules, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner, if so required in Division 8 Section "Door Hardware." Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.

9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  13. Complete final cleaning requirements, including touchup painting.
  14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  15. Submit record indicating completion of all Owner training requirements.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items; identified by Architect that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.

### 1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each Item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owners personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinsertion: Request reinsertion when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

Project name.  
Date.  
Name of Architect.  
Name of Contractor.  
Page number.

1.5 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual specification Sections and as follows:

1. Operation Data:

- a. Point of contact, name of individual and phone number.
- b. Emergency instructions and procedures.
- c. System, subsystem, and equipment descriptions, including operating standards.
- d. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
- e. Description of controls and sequence of operations.
- f. Piping diagrams.

2. Maintenance Data:

- a. Point of contact, name of individual and phone number.
- b. Manufacturer's information, including list of spare parts.
- c. Name, address, and telephone number of Installer or supplier.
- d. Maintenance procedures.
- e. Maintenance and service schedules for preventive and routine maintenance.
- f. Maintenance record forms.
- g. Sources of spare parts and maintenance materials.
- h. Copies of maintenance service agreements.
- i. Copies of warranties and bonds.

- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title

"OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

## 1.6 WARRANTIES

- A. Submittal time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
  - 1. Submit list of proposed cleaning agents with related product data to Owner prior to use.

## PART 3 -EXECUTION

### 3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Provide instructors experienced in operation and maintenance procedures.
  - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
  - 3. Schedule training with Owner, through Architect, with at least seven days advance notice.
  - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
  - 1. System design and operational philosophy.
  - 2. Review of documentation.
  - 3. Operations.
  - 4. Adjustments.
  - 5. Troubleshooting.
  - 6. Maintenance.
  - 7. Repair.

### 3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- b. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits.
- c. Rake grounds that are neither planted nor paved to a smooth/ even-textured surface.
- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- e. Remove snow and ice to provide safe access to building.
- f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains/ films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- g. Remove debris and surface dust from limited access spaces, including roofs, plenums/ shafts, trenches/ equipment vaults, manholes, attics, and similar spaces.
- h. Sweep concrete floors broom clean in unoccupied spaces.
- i. Vacuum carpet and similar soft: surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- k. Remove labels that are not permanent.
- l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

- 1) Do not: paint over "UL" and similar labels including mechanical and electrical nameplates. Remove paint or other matter obscuring tables.
- m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- n. Replace parts subject to unusual operating conditions.
- o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury fixtures to comply with requirements for new fixtures.
- q. Leave Project clean and ready for occupancy.

C. Final cleaning of HVAC System

1. All HVAC system cleaning shall be in accordance with National Air Duct cleaners Association (NADC) Standard 1992-01, Mechanical Cleaning of Non-Porous Air Conveyance Components, and the associated Guideline to the Standard.
  - a. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
2. Cleaning shall be accomplished by hand vacuuming and hand cleaning of all interior surfaces of the HVAC system to render the HVAC components visibly clean of dirt and debris and capable of passing NADCA Non-Porous Surfaces Cleaning Verification.
3. Any cleaned surface not being visibly clean or capable of passing the Vacuum Test as stipulated by the NADCA Standard 1992-01 shall be re-cleaned by the Contractor at no expense to the Owner.
4. Take air handlers (AHU) off-line during the cleaning process to minimize airborne migration of particulate matter within the ducts. Coordinate AHU shutdown with Owner.

- a. Install clean polyester filter media pads in all supply diffusers prior to cleaning the system.
  - b. Provide access holes as required to perform thorough cleaning, and repair upon inspection and approval of cleaning.
  - c. All vacuuming shall be accomplished utilizing HEPA equipped vacuum cleaners. The equipment shall be so labeled or proof provided before commencement of the Work.
  - d. Where the particulate collection equipment is exhausting inside the building, use HEPA filtration with 99.97% collection efficiency for .03 micron size particles.
5. Supply Air System: Vacuum clean all interior surfaces and components in supply ductwork from the air handlers to all supply diffusers served by each air handler.
- a. Vacuum dean all supply fan plenums.
  - b. Vacuum dean all coil plenums.
  - c. Wire brush and vacuum dean interior of fan housings and fan blades.
  - d. Wash supply fan bell inlets, fan blades, and fan interior surfaces using 500 to 1,000 psi moderate pressure wash with approved disinfectant.
  - e. Clean all turning vanes at both upstream and downstream sides.
  - f. Vacuum dean all interior components of all VAV mixing boxes.
  - g. Remove all supply air diffusers, vacuum, wash dean and re-install.
  - h. Vacuum and wash dean all filter holding frames and install new filters.
6. Return Air System: Vacuum clean all interior surfaces and components in return air ductwork from individual return grilles to the air handlers.
- a. Vacuum clean all fresh air intake louvers, dampers, and return air/fresh air intake plenums.
  - b. Clean all turning vanes at both upstream and downstream sides.
  - c. Remove all return air grilles and wash clean and re-install.

7. Clean and disinfect all condensate trays and insure that drain lines are free-flowing.
  8. Dispose of all debris removed from the HVAC system.
- D. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- E. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

## SECTION 01781 -PROJECT RECORD DOCUMENTS

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.

#### 1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit one set(s) of marked-up Record Prints.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
  - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

### PART 2 – PRODUCTS

#### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue-or black-line white prints of the Contract Drawings and Shop Drawings.
  - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

- b. Accurately record information in an understandable drawing technique.
  - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing Concealed installations.
- 2. Content: Types of items requiring marking include, but are not limited to, the following:
  - a. Dimensional changes to Drawings.
  - b. Revisions to details shown on Drawings.
  - c. Depths of foundations below first floor.
  - d. Locations and depths of underground utilities.
  - e. Revisions to routing of piping and conduits.
  - f. Revisions to electrical circuitry.
  - g. Actual equipment locations.
  - h. Duct size and routing.
  - i. Locations of concealed internal utilities.
  - j. Changes made by Change Order or Construction Change Directive.
  - k. Changes made following Architect's written orders.
  - l. Details not on the original Contract Drawings.
  - m. Field records for variable and concealed conditions.
  - n. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross reference on the Contract Drawings.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

- B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
  - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
  - 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  - 2. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product indicate whether Record Product Data has been submitted in operation and maintenance manuals Instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

## 2.4 ELECTRONIC RECORD DRAWINGS, SPECIFICATIONS AND PRODUCT DATA.

- A. All drawings must be received by USC in AutoCad 2010 format and include all files required to view, modify, and print the complete drawing set. All other electronic drawings must be in “pdf” format, Microsoft Word (compatible with 2007 version), or Microsoft Excel (compatible with 2007 version) unless otherwise agreed upon with Project Manager. Each document should be included as a separate document file, not combined into one PDF file. Each document file shall be named with text such that it is easily understood what information is contained within the file.
- B. The General Contractor shall provide the following “record documents” to the Lead Architect prior to Substantial Completion:
  1. One electronic list of all Record Documents submitted
  2. Original “As-Built Master Mark-up Documents” from the construction site
  3. One electronic version of all required installation, operation and maintenance manuals.
  4. One electronic version of all warranties, manufacturer start-up, and guarantees.
  5. One electronic version of all commissioning documentation.
  6. One electronic version of all T&B documentation.

- C. The General Contractor shall provide the following “record documents” to the Lead Architect within 15 days of Final Completion:

1. One electronic version of final Submittal Log
2. One electronic version of final Change Order Log
3. One electronic version of all other documentation required by specifications and not already provided.

## 2.5 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## PART 3 -EXECUTION

### 3.1 RECORDING AND MAINTENANCE

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

END OF SECTION

## SECTION 05500

### MISCELLANEOUS METALS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Steel framing and supports for application where framing and supports are not specified in other Sections.
- B. Steel framing and supports for countertops & miscellaneous equipment.
- C. Miscellaneous steel or aluminum trim.

##### 1.02 RELATED REQUIREMENTS

- A. Section 06100 - Miscellaneous Carpentry
- B. Section 09900 - Paints and Coatings: Paint finish.

##### 1.03 REFERENCE STANDARDS

- A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- B. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.
- C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.
- D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- E. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2007a.
- F. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2007.
- G. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2007.
- H. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.
- I. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2006.

- J. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2007.
- K. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2006 and Errata.
- L. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; American Welding Society; 2003, and Errata 2004.
- M. AWS D1.6 - Structural Welding Code - Sheet Steel; American Welding Society.
- N. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- O. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- P. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

#### 1.04 SUBMITTALS

- A. See Section 01330- Submittal Procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
- C. Provide Design Calculations, prepared by a qualified professional engineer, for miscellaneous framing and supports.
- D. For installed products indicated to comply with design loads, include structural analysis data designed and sealed by the qualified professional engineer responsible for their preparation.
- E. Templates: For anchor bolts or other anchoring systems for equipment.

### PART 2 PRODUCTS

#### 2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.
- C. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- D. Slotted Channel Framing: ASTM A 653, Grade 33.
- E. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.

- F. Fasteners: Type 304 or 316 Stainless-steel fasteners for exterior use and zinc plated fasteners with coating complying with ASTM B 633, Class Fe/SN 5, where built into exterior walls, of type, grade, and class required by application indicated.
- G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

## 2.02 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B 221 (ASTM B 221M), 6063 alloy, T6 temper.
- B. Bolts, Nuts, and Washers: Stainless steel.

## 2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

## 2.04 MISCELLANEOUS FRAMING AND SUPPORTS

- A. Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate Unites from steel shapes, plates and bars of welded construction, unless otherwise indicated. Fabricate to sixes, shapes and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts if units are installed after concrete is placed.
- C. Galvanize miscellaneous framing and supports where indicated.

## 2.05 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to  $1/12$  of clear span but not less than 8 inches, unless otherwise indicated.
- C. Galvanize loose steel lintels located in exterior walls.
- D. Prime loose steel lintels located in exterior walls with zinc-rich primer.

## 2.06 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive  $3/4$  inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.
  - 1. Provide mitered and welded units at corners.
  - 2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches larger than expansion or control joint.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.
- C. Galvanize shelf angles located in exterior walls.
- D. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in place concrete.

## 2.09 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installations with other work.
  - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize exterior miscellaneous steel trim and interior miscellaneous steel trim,

where indicated.

- D. Prime exterior miscellaneous steel trim and interior miscellaneous steel trim, where indicated with zinc-rich primer.

## 2.10 FINISHES - STEEL

- A. Prime paint all steel items. Finish metal fabrications after assembly. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Shop prime ferrous-metal items not indicated to be galvanized.
  - 1. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC- SP 3, "Power Tool Cleaning."
  - 2. Apply shop primer to comply with SSPC-PA1, "Paint Application Specification No.1", for shop painting.
- E. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1", for shop painting.
  - 1. Stripe paint corners, crevices, bolts, welds and sharp edges.
- F. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements.
- G. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

### 3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### 3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- D. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- E. Field weld components indicated. Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Perform field welding in accordance with AWS D1.1/D1.1M.
- G. Obtain approval prior to site cutting or making adjustments not scheduled.
- H. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.
- I. Touch up surfaces and finishes after erection.

### 3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

## SECTION 06100 -MISCELLANEOUS CARPENTRY

### PART 1 -GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Wood blocking, cants and nailers.
  - 2. Plywood backing panels.

#### 1.3 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. ALSC: American Lumber Standards Committee
  - 2. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 3. NLGA: National Lumber Grades Authority.
  - 4. SPIB: The Southern Pine Inspection Bureau.
  - 5. WCLIB: West Coast Lumber Inspection Bureau.
  - 6. WVVPA: Western Wood Products Association.

#### 1.4 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.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- B. Deliver interior wood materials that are to be exposed to view only after building is endorsed and weatherproof, wet work other than painting is dry, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.

## 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.
  - 3. Provide dressed lumber, S4S, unless otherwise indicated.

### 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWP A U1.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
  - 2. Use Categories:
    - a. AWP A U1-UC1: Interior, dry applications, such as furniture, some millwork.
    - b. AWP A U1-UC 2: Interior/ potentially damp applications, such as beams, timbers, flooring, framing, millwork, sill plates.

- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or 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.
- D. Application: Treat items indicated on Drawings, and the following:
  - 1. Wood sills, blocking, and similar concealed members in contact with masonry or concrete.

## 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. Cants.
- B. For items of dimension lumber size, provide Construction or No.2 grade lumber with 19 percent maximum moisture content of any species.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
  - 1. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
  - 2. Eastern softwoods, No.2 Common grade; NELMA.
- D. For blocking not used for attachment of other construction utility, stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

## 2.4 FASTENERS

- A. General: Provide fasteners d size and type indicated that comply with requirements specified in this Article for material and manufacture.

- B. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- C. Nails, Brads, and Staples: ASTM F 1667.
- D. Power-Driven Fasteners: NES NER-272.
- E. Wood Screws: ASME B1B.6.1.
- F. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- G. Lag Bolts: ASME B18.2.1.
- H. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- I. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 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: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

## PART 3 – EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. At 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. Do not splice structural members between supports, unless otherwise indicated.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
  2. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet O.C.
- E. 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.
- F. Comply with A'WPA recommendations for applying field treatment to cut surfaces of preservative-treated lumber.
- G. Securely attach 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.
- H. Use common wire 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; do not countersink nail heads, unless otherwise indicated.
- 3.2 WOOD BLOCKING, AND NAILER INSTALLATION
- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
1. Do not use wood blocking in fire-resistance-rated assemblies unless specifically allowed by authorities having jurisdiction.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

### 3.3 PROTECTION

- A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA registered label.

END OF SECTION

## SECTION 06410

### INTERIOR ARCHITECTURAL WOODWORK

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Plastic laminate Shelving
- B. Plastic Laminate Speaker Shelf Cabinet

##### 1.02 RELATED REQUIREMENTS

- A. Section 06100 - Miscellaneous Carpentry: Support framing, grounds, and concealed blocking.
- B. Section 09900 - Paints and Coatings: Site finishing of cabinet exterior.

##### 1.03 REFERENCE STANDARDS

- A. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2002.
- B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.
- C. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.9).
- D. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers. Meeting shall comply with requirements in Division 1 Sections "Project Management and Coordination".

##### 1.05 SUBMITTALS

- A. See Section 01330 - Submittal Procedures, for submittal procedures.
- B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers and other items installed in architectural woodwork.
- C. Product Data: For each type of product indicated, including cabinet hardware and accessories and finish materials and processes.

- D. Samples: Architectural cabinet construction, minimum 3 samples, 12 inches square, for each type, color, pattern and surface finish for proposed cabinet, countertop, and shelf unit substrate and finish.
- E. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

#### 1.06 QUALITY ASSURANCE

- A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.
- B. Perform cabinet construction in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.
- C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of continuous experience.

#### 1.07 MOCK-UP

- A. Provide mock-up of typical base cabinet, wall cabinet, and/or countertop, including hardware, finishes, and plumbing accessories.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.
- B. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

#### 1.09 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.
- B. Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 43 and 70 percent during the remainder of the construction period.
- C. Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by

field measurements before being enclosed, and indicate measurements on Shop Drawings.

2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

D. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other

## PART 2 PRODUCTS

### 2.01 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.

### 2.02 WOOD MATERIALS

- A. Medium Density Fiberboard (MDF): ANSI A208.2; type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated; composed of wood fibers pressure bonded with moisture resistant adhesive to suit application; sanded faces; thickness as required.
- B. Softwood Plywood: DOC PS 1, Medium Density Overlay

### 2.03 LAMINATE MATERIALS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Formica Corporation:
  2. International Paper; Decorative Products Div.
  3. Laminart.
  4. Pioneer Plastics Corp.
  5. Westinghouse Electric Corp.; Specialty Products Div.
  6. Wilsonart International; Div. of Premark International, Inc.
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
- C. Provide specific types as scheduled.

### 2.04 CABINET DOORS AND DRAWERS FRONTS

- A. Plastic Laminate: ¾" thick MDF substrate with Plastic Laminate finish and 3mm PVC edge banding.

### 2.05 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Provide cabinet hardware and accessory materials for a complete installation of architectural woodwork, except for items specified in Division 8 Section "Door Hardware" if included in this Project Manual.

- C. Hardware Standard: Comply with GHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- D. Frameless Concealed Hinges (European Type): BHMA A 156.9, B01602, 170 degrees of opening, self-closing.
- E. Wire Pulls: Back mounted, solid metal, 2-1/2 inches deep, 5 inches long, 5/16 inches in diameter: Satin stainless steel, complying with ADA inside clearance requirements.
- F. Adjustable Shelf Supports: K&V No.255 and 256; 5mm diameter by 32 mm twin metal pin type with anti tip-up shelf restraints, keel to retard shelf slide-off, and screw slot for mechanically attaching shelf to support. Size to accommodate 3/4 inch and 1 inch shelves. Static load rating minimum 800lbs. per shelf.
- G. Drawer Slides: Grade 1HD-100 and Grade 1HD-200, Side-mounted, full extensions, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
  - 1. Box Drawer Slides: 75 lbs
  - 2. File Drawer Slides: 200 lbs
  - 3. Pencil Drawer slides: 45 lbs
  - 4. Keyboard Slide: 75 lbs
- ~~H. Door Locks: BHMA A156.11, E07121~~
- ~~I. Drawer and Door Locks: BHMA A156.11. Five disc tumbler locks by National Lock Co. or equal. Provide locks for four drawers and four doors per elevation, keyed to current master key. Deliver keys to Owner.~~
- ~~J. Drawer Locks: BHMA A156.11, E07041~~
- ~~K. Touch Latches: Hafele #245.62.310 if noted on drawings.~~
- L. Exposed Hardware Finishes: Complying with BHMA A156.18 for BHMA finish number indicated.
  - 1. Satin Chromium Plated: BHMA626 for brass or bronze base; BHMA 652 fir steel base.
- M. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

## 2.06 SITE FINISHING MATERIALS

- A. Finishing: Site finished as specified in Section 09900.

## 2.07 INSTALLATION MATERIALS

- A. Furring, blocking shims and hanging strips: softwood or hardwood lumber, fire retardant treated and kiln dried to less than 15 percent moisture content.

## 2.08 FABRICATION

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior

woodwork complying with reference quality standard.

- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
  - 1. Corners of Cabinets and Edges of Solid Wood (Lumber) Members 3/4 inch thick or less: 1/16 inch.
  - 2. Corners of Cabinets and Edges of Solid Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
  - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

## 2.09 PLASTIC LAMINATE CABINETS

- A. Custom.
- B. AWI Type of Cabinet Construction: Flush Overlay.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements.
  - 1. Horizontal Surfaces Other Than Tops: Grade HGS
  - 2. Post formed Surfaces: Grade HGP
  - 3. Vertical Surfaces: Grade HGS
  - 4. Edges: 3mm PVC T-mold if exposed.
- D. Materials for Semi-Exposed Surfaces
  - 1. Surfaces Other Than Drawer Bodies: White Melamine.
    - a. Edges of Plastic Laminate Shelves: PVC T-mold matching laminate in color, pattern, and finish.
    - b. For semi-exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS
  - 2. Drawer Sides and Backs: solid-hardwood lumber.

3. Drawer Bottoms: Hardwood plywood.
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: White melamine.
- F. Colors, Patterns and Finishes; Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements.
  1. As selected by Architect from laminate manufacturer's full range in the following categories:
    - a. Solid colors with core same color as surface, matte finish.
    - b. Patterns, matte finish.
  2. Provide dust panels of 1/4 inch plywood or tempered hardboard above compartments and drawers, unless located directly counter tops.

## 2.10 SOLID SURFACE COUNTERTOPS

- A. Grade: Custom
- B. Solid Surface 100% Acrylic
- C. Colors, Patterns and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  1. As selected by Architect from manufacturer's full range in the following categories.
    - a. Solid colors with core same color as surface, matte finish.
    - b. Patterns, matte finish.
- D. Grain Direction: Parallel to cabinet fronts.
- E. Edge Treatment: Rounded eased edge as shown on drawings
- F. Core Material: Medium-density fiberboard made with exterior glue or Exterior-grade plywood.
- G. Core Material at Sinks: Exterior-grade plywood.
- H. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.
- I. Paper Backing: Provide paper backing on underside of countertop substrate.

## 2.11 PLASTIC LAMINATE SHELVING

- A. Grade: Custom
- B. Shelf Material: 3/4 inch medium-density fiberboard with a radius edge. 1" thick for spans longer than 36".
- C. Cleats: 3/4 inch solid lumber
- D. Wood Species: Any closed-grain hardwood.
- E. Edges: 3mm PVC T-mold.

## 2.12 SHOP FINISHING

- A. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- B. Preparation for Finishing; comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
  - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.
- C. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- D. Before installing architectural woodwork, examine shop-fabricated work or completion and complete work as required, including removal of packing and backpriming.

### **3.02 INSTALLATION**

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Anchor countertops securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
- G. Caulk space between backsplash and wall with sealant specified in Division 7 section "Joint Sealants."
- H. Touch up finish work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

### **3.03 ADJUSTING**

- A. Adjust installed work. Shim as required to align with walls, soffits etc.
- B. Adjust moving or operating parts to function smoothly and correctly.
- C. Damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

### 3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures. Lubricate parts as required for smooth operation.

END OF SECTION

## SECTION 07840

### FIRESTOPPING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not.

##### 1.02 RELATED REQUIREMENTS

- A. Section 01700 - Execution Requirements: Cutting and patching.

##### 1.03 REFERENCE STANDARDS

- A. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2006.
- B. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).
- C. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

##### 1.04 SUBMITTALS

- A. See Section 01330 - Submittal Procedures.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

##### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section and:
  - 1. Having the necessary experience, staff and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.
  - 2. Assign installation of through-penetration firestop systems in Project to a single qualified installer.
- C. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.
- D. Store and handle materials for through-penetration firestop systems to prevent deterioration or damage due to moisture, temperature changes, contaminants, or other

causes.

- E. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- F. Coordinate sizing of sleeves, opening, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- G. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations as applicable.
- H. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by Owner's inspecting agency and building inspector, if required by authorities having jurisdiction.

#### 1.06 FIELD CONDITIONS

- A. Provide ventilation in areas where solvent-cured materials are being installed.

### PART 2 PRODUCTS

#### 2.01 FIRESTOPPING SYSTEMS

- A. Available products: Subject to compliance with requirements, through-penetration firestop systems that may be incorporated into the Work include, but are not limited to, those systems indicated that are produced by one of the following manufacturers:
  - 1. Hilti, Inc.
  - 2. 3M; Fire Protection Products Division.
- B. Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- C. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
  - 1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-/Rock -wool-fiber insulation.
  - 2. Temporary forming materials.
  - 3. Collars.
  - 4. Steel Sleeves.
- D. Fill Materials: Provide through-penetration firestop systems containing the types of fill materials as appropriate for the type and rating of through-penetration. fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill", "void", or "cavity" materials.

## 2.02 MATERIALS

- A. Firestopping Sealants: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify openings are ready to receive the work of this section.

### 3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.

### 3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

### 3.04 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

### 3.05 PROTECTION

- A. Protect adjacent surfaces from damage by material installation.

## END OF SECTION

## SECTION 07920 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Coordinate with finish schedule notes for limited repair of sealants at windows, walls, casework and other locations as noted.

#### 1.2 SUMMARY

- A. This Section includes joint sealants for the following applications:
  - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Perimeter joints between materials listed above and ~~frames of doors windows and louvers~~. Partial original existing window frames remain in window openings. Gaps between existing replacement frames and original frames are to be caulked from the interior side.
    - ~~b. Other joints as indicated.~~
  - ~~2. Exterior joints in the following horizontal traffic surfaces:~~
    - ~~a. Isolation and contraction joints in cast in place concrete slabs.~~
    - ~~b. Joints between different materials listed above.~~
    - ~~c. Other joints as indicated.~~
  - 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
    - a. Control and expansion joints on exposed interior surfaces of exterior walls.
    - b. Perimeter joints of exterior openings where indicated.
    - c. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
    - d. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - e. Joints between casework and adjoining walls, floors, counters and other materials.
    - f. Joints between ceiling grid and adjoining walls, ceilings and other materials
    - g. Other joints as indicated.
- B. Related Sections include the following:

1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

### 1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

### 1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

### 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

### 1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
  2. When joint substrates are wet.
  3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

## 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- D. Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant ES-2:

- 1. Available Products:
  - a. Pecora Corporation; 898 Sanitary Silicone Sealant, white.
  - b. Tremco; Tremsil 600 White.
  - c. GE Silicones; Sanitary 1700
  - d. Dow Corning Corp; 786
- 2. Type and Grade: S (single component) and NS (nonsag).
- 3. Class: 25.
- 4. Use Related to Exposure: NT (nontraffic).
- 5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.

E. Single-Component Pourable Urethane Sealant ES-3:

1. Available Products:
  - a. Sika Corporation, Inc.; Sikaflex - 1CSL.
  - b. Sonneborn, Division of ChemRex Inc.; SL 1.
2. Type and Grade: S (single component) and P (pourable).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.

F. Single-Component Non-sag Urethane Sealant ES-4:

1. Available Products:
  - a. Sika Corporation, Inc.; Sikaflex – 1a.
  - b. Sonneborn, Division of ChemRex Inc.; NP 1
  - c. Tremco Vulkem 116
2. Type and Grade: S (single component) and NS (non-sag).
3. Class: 25.
4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
5. Uses Related to Joint Substrates: M, A, and, as applicable to joint substrates indicated, O.

2.4 LATEX JOINT SEALANTS

A. Latex Sealant LS-1: Comply with ASTM C 834, Type P, Grade NF.

B. Available Products:

1. Pecora Corporation; AC-20+.
2. Sonneborn, Division of ChemRex Inc.; Sonolac.
3. Tremco; Tremflex 834.

2.5 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) O (open-cell material) B (bicellular material with a surface skin) or any of

the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

## 2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or

blowing out joints with oil-free compressed air. Porous joint substrates include the following:

- a. Concrete.
  - b. Masonry.
  - c. Unglazed surfaces of ceramic tile.
3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
  - 3. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
  - 4. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
    - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

### 3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

### 3.6 JOINT-SEALANT SCHEDULE

- A. Vertical movement joints on exposed interior surfaces of exterior walls:
  - 1. Joint sealant: Single component nonsag polyurethane sealant:

2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- B. Interior perimeter joints of exterior openings:
  1. Joint sealant: Single component nonsag polyurethane sealant:
  2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- C. Interior joints between plumbing fixtures and adjoining walls, floors, and counters.
  1. Joint Sealant: Single-component mildew-resistant neutral-curing silicone sealant.
  2. Joint-Sealant Color: White.
- D. Interior control, expansion, and isolation joints in horizontal traffic surfaces of ceramic tile flooring and other interior horizontal traffic surfaces.
  1. Joint Sealant: Multicomponent pourable urethane sealant.
  2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- E. Perimeter joints between interior wall surfaces and frames of interior doors, window, elevator entrances and cabinets.
  1. Joint Sealant: Latex. Sealant.

END OF SECTION 07920

## SECTION 08211

### FLUSH WOOD DOORS

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. See Section 01330 - Submittal Procedures.
- B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- C. Specimen warranty.
- D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing and louvers.
- E. Samples: Submit two samples of door veneer, 4" x 4" inch in size illustrating wood grain, stain color, and sheen.
- F. Manufacturer's Installation Instructions: Indicate special installation instructions.
- G. Warranty, executed in Owner's name.

##### 1.02 QUALITY ASSURANCE

- A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- C. Installed Fire Rated Doors : Conform to NFPA 80 for fire rated class as indicated.

##### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

##### 1.04 WARRANTY

- A. See Section 01770 - Closeout Procedures for additional warranty requirements.
- B. Interior Doors: Provide manufacturer's warranty for the life of the installation.
- C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

#### PART 2 PRODUCTS

## 2.01 MANUFACTURERS

- A. All Doors: Marshfield (Basis of Design)

## 2.02 DOORS AND PANELS

- A. All Doors: See drawings for locations and additional requirements.
  - 1. Quality Level: Custom Grade, Extra Heavy Duty performance, in accordance with WDMA I.S.1-A.
  - 2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
  - 1. Provide solid core doors at all locations.
  - 2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with NFPA 252, UL 10B, or UBC Standard 7-2-94 ("neutral pressure"); UL or WH (ITS) labeled without any visible seals when door is open.
  - 3. Wood veneer facing with factory transparent finish where indicated on drawings.

## 2.03 DOOR AND PANEL CORES

- A. Fire Rated Doors: Mineral core, Type FD, plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

## 2.04 DOOR FACINGS

- A. Wood Veneer Facing for Transparent Finish: Flat cut white oak factory stained to match existing doors.

## 2.05 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with Stiles and Rails:
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- E. Provide edge clearances in accordance with AWI Quality Standards Illustrated Section 1700.

## 2.06 FACTORY FINISHING - WOOD VENEER DOORS

- A. Factory finish doors in accordance with specified quality standard:
  - 1. Transparent Finish: Transparent catalyzed polyurethane, Premium quality, matte sheen to match adjacent doors within the suite.
- B. Factory finish doors in accordance with approved sample.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

### 3.02 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.

### 3.03 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.
- B. Adjust closers for full closure.

### 3.04 SCHEDULE - See Drawings

END OF SECTION

## SECTION 08711 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Commercial door hardware.
  - 2. Cylinders for doors specified in other Sections.

#### 1.2 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Shop Drawings: Include details of electrified door hardware and wiring diagrams.
- ~~C. Samples: Samples of products included in submittals shall be supplied upon request for review.~~
- D. Door Hardware Schedule: Organized into door hardware sets indicating type, style, function, size, label, hand, manufacturer, fasteners, location, degree of opening, and finish of each door hardware item. Include description of each electrified door hardware function, wiring diagrams and sequence of operation.
- ~~E. Keying Schedule: Detail Owner's final keying instructions for locks in the form of a schematic.~~

#### 1.3 QUALITY ASSURANCE

- A. Supplier Qualifications:
  - 1. Person who is or employs a qualified DHI Architectural Hardware Consultant.
  - 2. Shall have supplied jobs of similar size and value.
  - 3. Shall have been in the business of supplying finish hardware for a minimum of five years.
- B. Source Limitations: Obtain electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable.
- ~~C. Keying Conference: Conduct conference at Project site. Incorporate keying conference decisions into final keying schedule. Submit schematic to manufacturer at time of order.~~
- ~~D. Keys: All keys shall be labeled and copy of finalized schematic delivered to owner by registered mail.~~

- E. Templates: Obtain and distribute templates for doors, frames, finish hardware and other work specified to be factory prepared for installing door hardware.
- F. Standards: Comply with BHMA A156 series standards, Grade 1.
- G. Certified Products: Provide door hardware that is listed in BHMA directory of certified products.

#### 1.4 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 warranty period.
  - 1. Warranty Period for Locks: Five years from date of Substantial Completion.
  - 2. Warranty Period for Manual Closers: 10 years from date of Substantial Completion. Closer body shall carry a life of the building warranty.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Product: Subject to compliance with code and function requirements, provide the product named for each door hardware item indicated in Door Hardware Sets.
- B. Basis-of-Design Product: Product named for each door hardware item indicated in Door Hardware Sets establishes the basis of design. Provide either the named product or a comparable product meeting this specification by one of the manufacturers specified for each type of hardware item.

#### 2.2 DOOR HARDWARE

- A. Scheduled Door Hardware: Provide door hardware according to Door Hardware Sets as scheduled on Drawings. Manufacturers' names are abbreviated.
- B. Shall comply with all code requirements.

#### 2.3 HINGES

- A. Hinges:
  - 1. Manufacturers:
    - a. Butt Hinges:
      - 1) Baldwin Hardware Corporation (BH).
      - 2) Hager Companies (HAG).

3) McKinney Products Company. (MK)

~~b. Continuous Pin and Barrel Hinge:~~

~~1) Gallery Hinge Co. (GAL)~~

~~2) Markar Products, Inc. (MA)~~

~~3) McKinney Products Company.~~

2. Butt hinges shall comply with ANSI 156.1.
3. Continuous Hinges shall comply with ANSI 156.26.
4. General: Except for hinges to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
5. Ball bearing butt hinges shall be used on any door with a closer or overhead stop. Heavy weight hinges shall be used in accordance with manufacture's recommendations for door weight.
6. Shall be full mortised unless indicated in hardware sets.
7. Number of Hinges:
  - a. Butt Hinges: Two hinges for every door up to 60". One additional hinge for every additional 30" of door height.
  - ~~b. Continuous: One hinge per door.~~
8. Hinge Size:
  - a. Butt Hinges: Shall meet manufactures requirements for size based on door weight and width.
  - b. Continuous: Shall be the exact size height of the door.
9. Hinge Base Metal: Unless otherwise indicated, provide the following:
  - a. Exterior Hinges: Stainless steel, with stainless-steel pin.
  - b. Interior Hinges: Steel, with steel pin.
  - c. Hinges for Fire-Rated Assemblies: Steel, with steel pin.
10. Non-removable Pins: Provide set screw in hinge barrel that prevents removal of pin while door is closed; for outswinging exterior doors.
11. Screws: Phillips flat-head screws; screw heads finished to match surface of hinges.
  - a. Metal Doors and Frames: Machine screws (drilled and tapped holes).
  - b. Wood Doors and Frames: Wood screws.
  - c. Fire-Rated Wood Doors: Threaded-to-the-head wood screws.

## 2.4 MECHANICAL LOCKS AND LATCHES

- A. Manufacturers:
  - 1. Best Access Systems (BE).
  - 2. Corbin Russwin Architectural Hardware. (RU).
  - 3. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- B. Lockset shall meet ANSI A156.13, Grade 1.
- C. Lockset Design: Heavy Duty M- series.
- D. Lock Throw: Comply with labeled fire door requirements.
- E. Backset: 2-3/4 inches, unless otherwise indicated.
- F. All locksets shall be compatible with a best 7-pin interchangeable core to match USC Standard.

## 2.5 BOLTS

- A. Fire-Rated Doors: Comply with labeled fire door requirements.
- B. Flush Bolts: BHMA Grade 1, designed for mortising into door edge.
  - 1. Manufacturers:
    - a. Adams Rite Manufacturing Co. (ARM).
    - b. Hiawatha, Inc. (HIA).
    - c. McKinney (MC).
    - d. Rockwood Manufacturing Company (RM).
    - e. Trimco, Inc. (TR).

## 2.6 CLOSERS

- A. Shall be certified ANSI A156.4 Grade 1.
- B. Surface-Mounted Closers:
  - 1. Shall have multi sized spring power adjustment for sizes 2 thru 6 or 1 thru 4 for barrier free applications.
  - 2. Shall have full covers.
  - 3. Stop arms:
    - a. Where specified supply Unitrol (UNI) type with spring stop and backcheck at 65 degrees. In lieu of Unitrol type stop arm provide rigid parallel arm with an auxiliary overhead stop. Overhead stop to be an 8HD type. Provide arm bracket to coordinate overhead stop with door closer.
    - b. Where specified provide Closer Plus Spring Arm (CPS). In lieu of Closer Plus Spring Arm provide Cush-N-Stop type arm.
  - 4. Provide soffit plate for parallel arm applications using aluminum frames with blade stops or snap on stops.
  - 5. Manufacturers:
    - a. DORMA (DM).

- b. LCN Closers; an Ingersoll-Rand Company (LCN) 4000 Series.
  - c. Sargent Manufacturing Company (SGT) 281 Series.
- C. Size of Units: Multi-sized, adjustable to meet field conditions and requirements for opening force.

## 2.7 PROTECTIVE TRIM UNITS

- A. Protective Trim Units: Sized 2 inches less than door width on push side and 1 inch less than door width on pull side, by 8" high or indicated. Plates to be applied ½" from bottom of door to bottom of plate and centered on the door.
  - 1. Shall be beveled on four sides.
  - 2. Material: Satin Stainless Steel.
    - a. Fasten to door using fasteners provided by manufacturer.
    - b. Manufacturers:
      - 1) Hager (HA).
      - 2) McKinney (MC).
      - 3) Rockwood Manufacturing Company (RM).

## 2.8 STOPS AND HOLDERS

- A. Stops and Holders:
  - 1. All doors shall have a doorstop that effectively protects any and all doors, walls and finish hardware that comes into contact with the operation of the function of the door. Wall stops are the preferred method.
  - 2. Provide sufficient blocking and reinforcement for secure installation and operation of all stops and holders.
  - 3. Overhead stops shall be provided where noted in hardware sets or if wall stop can not stop and protect the doors, walls or finish hardware from damage.
  - 4. Oversized floor stops are only permitted for exterior doors.
  - 5. Closer stop arms are only permitted if specified in hardware set.
  - 6. Manufacturers:
    - a. McKinney (MCK).
    - b. Rixson-Firemark, Inc. (RIX).
    - c. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
- B. Silencers for Door Frames: Neoprene or rubber; fabricated for drilled-in application to frame.

## ~~2.9 DOOR GASKETING AND THRESHOLDS~~

~~A. Door Gasketing: Provide continuous smoke, fire and/or sound gasketing on interior doors where indicated or scheduled. Provide door sweep along bottom of door for sound control. Provide non-corrosive fasteners for exterior applications and elsewhere as indicated.~~

~~1. Manufacturers:~~

~~a. Gasketing:~~

- ~~1) Hager Companies (HAG).~~
- ~~2) McKinney (MCK).~~
- ~~3) National Guard Products, Inc. (NGP).~~
- ~~4) Pemko Manufacturing Co., Inc. (PEM).~~
- ~~5) Reese Enterprises, Inc. (RE).~~
- ~~6) Sealeze Corporation (SEL).~~
- ~~7) Zero International, Inc. (ZRO).~~

- ~~2. 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.~~
- ~~3. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled, based on testing according to UL 1784.~~
- ~~4. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled, based on testing according to UL 10C or NFPA 252.~~
- ~~5. Sound Rated Gasketing: Assemblies that are listed and labeled, based on testing according to ASTM E 1408.~~
- ~~6. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.~~

## 2.10 CYLINDERS, KEYING, AND STRIKES

A. Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturer of cylinders shall be the same as lock manufacturer supplied.
2. Number of Pins: Seven pin, interchangeable.
3. Compatible with USC cores and keying system.
- ~~4. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.~~

~~a. Replace construction cores with permanent cores, as directed by Owner.~~

~~B. Keying System: Factory registered keying system; grand master key system.~~

- ~~1. Keys: Provide nickel silver keys permanently inscribed with a visual key control number and "DO NOT DUPLICATE" notation. In addition to one extra blank key for each lock, provide three change keys.~~

C. Strikes: Manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set.

## 2.11 FABRICATION

- A. Base Metals: Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials if different from specified standard.
- B. Fasteners: Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated. Provide steel machine or wood screws or steel through bolts for fire-rated applications.
- C. Spacers or Hex Bolts: For through bolting of hollow metal doors.
- D. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."
- E. Finishes: Comply with BHMA A156.18.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Examine doors and frames for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- B. Steel Door and Frame Preparation: Comply with DHI A115 series. Drill and tap doors and frames for surface-applied hardware according to SDI 107.
- C. Wood Door Preparation: Comply with DHI A115-W series.
- D. Hardware Installation: Shall be in accordance to manufactures instructions.
- E. Mounting Heights: Comply with the following requirements, unless otherwise indicated:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
  - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- F. Miscellaneous Accessories: Shall be provided as necessary for the proper and secure attachment of all hardware to doors and frames.
- G. Adjust and reinforce attachment substrates as necessary for proper installation and operation. Drill and tap units that are not factory prepared for fasteners. Space fasteners and anchors according to industry standards.

- a. Configuration: Provide one power supply for each door. It is acceptable to provide the number of power supplies required to adequately supply doors with electrified door hardware.
- 2. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- H. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with accessibility requirements.
  - 1. Door Closers Adjustments:
    - a. Adjust sweep period so that from an open position of 70 degrees, the door will take at least three seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
    - b. Adjust back-check to slow the door opening at about 75 degrees, when door is forcibly opened beyond its pre-adjusted limits.

### 3.2 FIELD QUALITY CONTROL

- A. Inspections: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

### 3.3 DOOR HARDWARE SETS

- A. As scheduled.

END OF SECTION 08711

## SECTION 09260

### GYPSUM BOARD ASSEMBLIES

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Gypsum wallboard.
- D. Joint treatment and accessories.

##### 1.02 REFERENCE STANDARDS

- A. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).
- B. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2007.
- C. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2007.
- D. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.
- E. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2005.
- F. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2006a.
- G. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000 (Reapproved 2005).
- H. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.
- I. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.
- J. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2006.

### 1.03 SUBMITTALS

- A. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

### 1.04 QUALITY ASSURANCE

## PART 2 PRODUCTS

### 2.01 BOARD MATERIALS

- A. Wallboard and Ceiling Board: Paper-faced gypsum wallboard as defined in ASTM C 1396/C 1396M; sizes to minimize joints in place; ends square cut. Not of Chinese origin.

1. Application: Use for vertical surfaces and ceilings, including clean room and toilet room as noted unless otherwise indicated.
2. Also at Assemblies Indicated with Fire-Rating as applicable.
3. Use National Gypsum XP Gypsum Board: Type X Gyp Core mold/mildew/moisture resistant, 100% recycled purple paper. Basis of Design.
4. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
5. Thickness:

- a. Vertical and Horizontal Surfaces: 5/8 inch.

### 2.02 ACCESSORIES

- A. Acoustic Sealant: As specified in Section 07920 and as noted on drawings.
- B. Finishing Accessories: ASTM C 1047, galvanized steel or rolled zinc, unless otherwise indicated.
  1. Types: As detailed or required for finished appearance.
  2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.
- C. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.

1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as

- otherwise indicated.
  - 2. Ready-mixed vinyl-based joint compound.
- D. Screws for Attachment to Steel Members Less Than 0.03 inch In Thickness, to Wood Members, and to Gypsum Board: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.
- E. Screws for Attachment to Steel Members From 0.033 to 0.112 Inch in Thickness: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.
- F. Screws: ASTM C 1002; self-piercing tapping type; cadmium-plated for exterior locations.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

### 3.02 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Sealant: Install in accordance with manufacturer's instructions.
  - 1. Place two parallel beads continuously on substrate before installation of perimeter framing members along top and bottom tracks.
  - 2. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.

### 3.03 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
  - 1. Exception: Tapered edges to receive joint treatment at right angles to framing.
- C. Installation on Metal Framing: Use screws for attachment of all gypsum board.

### 3.04 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

### 3.05 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use fiberglass joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C 840, as follows:
  - 1. Level 5: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  - 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
  - 3. Level 1: Wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Finish all gypsum board in accordance with ASTM C 840 ~~Level 4 or~~ Level 5 if indicated.
- D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

### 3.06 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Before Contractor installs gypsum board ceilings, Architect ~~and DHEC~~ will conduct an above ceiling observation and report deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.
- B. Notify Architect seven days in advance of date and time when Project, or part of Project, will be ready for above-ceiling observation.
- C. Before notifying Architect, complete the following in areas to receive gypsum board ceilings:
  - 1. Installation of 80 percent of lighting fixtures, powered for operation.
  - 2. Installation, insulation, and leak and pressure testing of water piping systems.

3. Installation of air-duct systems.
4. Installation of air devices.
5. of mechanical system control-sir tubing.
6. Installation of ceiling support framing.
7. Installation of through-penetration firestopping and fire-resistant joint sealants, with identification labels.

### 3.07 PROTECTION

- A. Protect installed gypsum board products during remainder of construction period. Remove and replace gypsum board panels exposed to moisture in excess of limits recommended by manufacturer, or that exhibit moisture saturation or mold formation.

END OF SECTION

## SECTION 09511

### ACOUSTICAL PANEL CEILINGS

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

##### 1.2 SUMMARY

###### A. Section Includes:

1. Acoustical ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

###### B. Related Sections:

1. Section 09260 – Gypsum Board Assemblies
2. Divisions 15 HVAC
3. Division 16 Electrical Work

###### C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, Proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories' Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

##### 1.3 REFERENCES

1. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
2. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

3. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
4. ASTM E 1264 Classification for Acoustical Ceiling Products.
5. ASTM E 119 Standard Test Method for Fire Tests of Building Construction and Material.
6. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
7. International Code Council-Evaluation Services - Evaluation Report, ESR-1308, Fire- and Nonfire-Resistance-Rated Suspended Ceiling Framing Systems.
8. ASCE 7 Standard – American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
9. CISCA 0-2 – Ceilings and Interior Systems Construction Association Recommendations for Direct-Hung Acoustical Tile and Lay-In Panel Ceilings, Seismic Zones 0-2

#### 1.4 SYSTEM DESCRIPTION

Seismic Loads: Design and size components to withstand seismic loads in accordance with the International Building Code, Section 1621 for Category C.

#### 1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- D. Certifications: Manufacturer's certifications that system complies with specified requirements:
  1. For seismic performance: International Code Council Evaluation Report, ESR-1308
  2. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

## 1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
  - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
    - a. Flame Spread: 25 or less
    - b. Smoke Developed: 50 or less
- C. Seismic Performance: Provide acoustical ceiling system that has been evaluated by an independent party and found to be compliant with the 2003 International Building Code, Seismic Category C.
  - 1. Tested per International Code Council – Evaluation Services – AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components as evidenced by International Code Council Evaluation Report, ESR-1308.
- D. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

## 1.8 PROJECT CONDITIONS

- A. Space Enclosure:

Building areas to receive ceilings shall be free of construction dust and debris. Acoustical ceiling tile performance and hot dipped galvanized steel, aluminum or stainless steel suspension systems can be installed up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Cannot be used in exterior applications where standing water is present or where moisture will come in direct contact with the ceiling.

## 1.9 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
  - 1. Acoustical Panels: Sagging and warping.
  - 2. Grid System: Rusting and manufacturer's defects.
- C. Warranty Period:
  - 1. Acoustical panels and grid systems performance supplied by one source manufacturer is fifteen (15) years from date of substantial completion.
- D. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

## 1.10 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
  - 1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
  - 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Ceiling Panels:
  - 1. Armstrong World Industries, Inc.
  - 2. USG
  - 3. Or as noted.
- B. Suspension Systems:
  - 1. Armstrong World Industries, Inc.
  - 2. USG

### 2.2 ACOUSTICAL CEILING UNITS (Basis of Design)

- A. Acoustical Panels Type ACT1:
  - 1. Surface Texture: \_\_\_\_\_

2. Composition: \_\_\_\_\_
3. Color: White
4. Size: 2x2
5. Edge Profile: Square for interface with USG 15/16" DX/DXL Int. Duty Grid.
6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton.
7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton.
8. Articulation Class (AC): ASTM E 1111; Classified with UL label on product carton.
9. Flame Spread: ASTM E 1264; Class A.
10. Light Reflectance (LR) White Panel: ASTM E 1477.
11. Dimensional Stability: Non-Sag.
12. Acceptable Product: USG Radar ClimaPlus.

## 2.3 SUSPENSION SYSTEMS

- A. Components: Main beams and cross tees In accordance with the International Building Code, Section 1621 for Category C as described in ESR-1308.
  1. Structural Classification: ASTM C 635, (Intermediate Duty) (Heavy Duty).
  2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
  3. Represented Systems: USG 15/16" DX/DXL Int. Duty Grid.
- B. Attachment Devices: In accordance with the International Building Code, Section 1621 for Category C.
- C. Wire for Hangers and Ties: In accordance with the International Building Code, Section 1621.
- D. Wall Moldings: In accordance with the International Building Code, Section 1621 for Category C or method as described in ESR-1308.
  1. Nominal 7/8 inch x 7/8 inch hemmed, pre-finished angle molding (7800) (7802) (7803) (780036) (HD7801)
  2. Nominal 15/16 inch x 15/16 inch hemmed, pre-finished angle molding (7809)
- E. Accessories:
  1. BERC2 – 2 inch Beam End Retaining Clip, 0.034 inch thick, hot-dipped galvanized cold-rolled steel per ASTM A568 – used to join main beam or cross tee to wall molding.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

### 3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
  - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

### 3.3 INSTALLATION

- A. Install suspension system and panels in accordance with the International Building Code, Section 1621, except as noted in Section 4.4.3.2 of ESR-1308, and with the authorities having jurisdiction.
- B. ESR-1308, Section 4.4.3.2, Seismic Design Category C Installation:

Terminal ends of the runners are secured by attaching the BERC-2 clip to the wall molding and attaching the runners to the BERC-2 clip. The runners have zero clearance at the perimeter on two adjacent walls and with 3/8-inch (9.5 mm) clearance on the opposite walls. The clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. BERC-2 clips installed in this manner are an acceptable means of preventing runners from spreading, in lieu of spacer bars required in CISCA 0-2, which is referenced in ASCE 7, Section 9.6.2.6.2.1, which is referenced in IBC Section 1621. Except for the use of the BERC-2 clip as noted above, installation of the ceiling system must be as prescribed by the applicable code. Maximum ceiling weight permitted is 1.20 pounds per square foot (5.86 kg/m<sup>2</sup>). This construction is equivalent to that required by CISCA 0-2, which is referenced in ASCE-7, Section 9.2.6.2.1, and which is referenced in IBC Section 1621.

- C. The presence of a hanger wire within 3 inches of an expansion relief joint as called for in ASTM C 636 shall be required in addition to the requirements of the International Building Code, Section 1621.2.5 and with the authorities having jurisdiction.
- D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

### 3.5 ADJUSTING AND CLEANING

- A. Replace damaged and broken panels.

- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

## SECTION 09681 - TILE CARPETING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes modular carpet tile.
- B. Related Sections include the following:
- C.
  - 1. Division 09 Section Resilient Floor Tile for resilient wall base and accessories installed with carpet tile.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
- B. Shop Drawings: Show the following:
  - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
  - 2. Existing flooring materials to be removed.
  - 3. Existing flooring materials to remain.
  - 4. Carpet tile type, color, and dye lot.
  - 5. Type of subfloor.
  - 6. Type of installation.
  - 7. Pattern of installation.
  - 8. Pattern type, location, and direction.
  - 9. Pile direction.
  - 10. Type, color, and location of insets and borders.
  - 11. Type, color, and location of edge, transition, and other accessory strips.
  - 12. Transition details to other flooring materials.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet Tile: Full-size Sample.

2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- (300-mm-) long Samples.
- D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- E. Qualification Data: For Installer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency.
- G. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
  1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
  2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- H. Warranty: Special warranty specified in this Section.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to carpet tile installation including, but not limited to, the following:
  1. Review delivery, storage, and handling procedures.
  2. Review ambient conditions and ventilation procedures.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."

#### 1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."

- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

## 1.7 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
  - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
  - 2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, [loss of tuft bind strength,] [dimensional stability,] [excess static discharge,] and delamination.
  - 3. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 CARPET TILE

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
- B. Products: Subject to compliance with requirements, provide one of the following:
  - 1. See finish legend.

### 2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
  - 1. VOC Limits: Provide adhesives with VOC content not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
  - 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. For wood subfloors, verify the following:
  - 1. Underlayment over subfloor complies with requirements specified in Division 06 Section "Rough Carpentry."
  - 2. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- D. For metal subfloors, verify the following:
  - 1. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- E. For painted subfloors, verify the following:
  - 1. Perform bond test recommended in writing by adhesive manufacturer.
- F. For raised access flooring systems, verify the following:
  - 1. Access floor complies with requirements specified in Division 09 Section "Access Flooring."
  - 2. Access floor substrate is compatible with carpet tile and adhesive if any.
  - 3. Underlayment surface is flat, smooth, evenly planed, tightly jointed, and free of irregularities, gaps greater than 1/8 inch (3 mm), protrusions more than 1/32 inch (0.8 mm), and substances that may interfere with adhesive bond or show through surface.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/4 inch (6 mm) wide or wider and protrusions more than 1/32 inch (0.8 mm), unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

### 3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

### 3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  2. Remove yarns that protrude from carpet tile surface.
  3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09681

## SECTION 10110 - VISUAL DISPLAY SURFACES

### 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. Chalkboards.

#### 1.3 REFERENCED STANDARDS

- A. American Society for testing materials
  - 1. ASTM E84 Standard Test Method for Surface Burning Characteristics for Building Materials

#### 1.4 SUBMITTALS

- A. Product Data: Provide technical data for materials specified. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for visual display surfaces.
- B. Shop Drawings: For visual display surfaces. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of panel joints.
  - 2. Include sections of typical trim members.
- C. Samples for Initial Selection: For each type of visual display surface indicated, for units with factory-applied color finishes, and as follows:
  - 1. Actual sections of 502 Gray NP<sup>3</sup> Chalkboard and 1-3/4" face, Cherry mitered corners, WLCS; MLC deluxe; 1600 series
- D. Samples for Verification: For each type of visual display surface indicated.
  - 1. Visual Display Surface: Not less than 8-1/2 by 11 inches, mounted on substrate indicated for final Work. Include one panel for each type, color, and texture required.
  - 2. Trim: 6-inch long sections of each trim profile.
  - 3. Accessories: Full-size Sample of each type of accessory.

- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for surface-burning characteristics of fabrics.
- F. Maintenance Data: For visual display surfaces to include in maintenance manuals.
- G. Warranties: Sample of special warranties.

## 1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Manufacturer shall be a firm engaged in the manufacture of visual display boards in the United States
  - 2. Manufacturer shall have a minimum of 5 years experience in the manufacture of visual display boards
- B. Operation and Maintenance: Include data on regular cleaning, stain removal and precautions.
- C. Source Limitations: Obtain visual display surfaces from single source from single manufacturer.
- D. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: 26-75.
  - 2. Smoke-Developed Index: 0-450.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver factory-built visual display surfaces including factory-applied trim where indicated completely assembled in one piece without joints, where possible. If dimensions exceed maximum manufactured panel size, provide two or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site.
- B. Store visual display surfaces vertically with packing materials between each unit.
- C. Schedule delivery of visual display boards with spaces sufficiently complete so that visual display boards can be installed upon delivery.
- D. Store products in manufacturer's unopened packaging until ready for installation.
- E. Store materials protected from exposure to harmful weather conditions and at temperatures and humidity conditions recommended by manufacturer.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install visual display surfaces until spaces are enclosed and weather tight, wet work in spaces is complete and dry, work above ceilings is

complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

- B. Field Measurements: Verify actual dimensions of construction contiguous with visual display surfaces by field measurements before fabrication.
  - 1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

## 1.8 WARRANTY

- A. Special Warranty for Porcelain-Enamel Face Sheets: Manufacturer's standard form in which manufacturer agrees to repair or replace porcelain-enamel face sheets that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Surfaces lose original writing and erasing qualities.
    - b. Surfaces exhibit crazing, cracking, or flaking.
  - 2. Warranty Period: 5 years from date of Substantial Completion.
  - 3. Warranty Period: Life of the building.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. Porcelain-Enamel Face Sheet: Manufacturer's standard steel sheet with porcelain-enamel coating fused to steel; uncoated thickness indicated.
  - 1. Manufacturers: Subject to compliance with requirements, provide products from the following manufacturer:
    - a. Claridge Products and Equipment, Inc.
  - 2. Matte Finish: Low reflective; chalk wipes clean with dry cloth or standard eraser.

### 2.2 CHALKBOARD ASSEMBLIES

- A. Porcelain-Enamel Chalkboards: Balanced, high-pressure, factory-laminated chalkboard assembly of three-ply construction consisting of backing sheet, core material, and 0.021-inch- (0.53-mm-) thick porcelain-enamel face sheet with matte finish.
  - 1. Manufacturers: Subject to compliance with requirements, provide products from the following manufacturer:
    - a. Claridge Products and Equipment, Inc.
  - 2. Fiberboard Core: 1/2 inch (13 mm) thick; with 0.001-inch- (0.025-mm-) thick, aluminum foil backing.

## 2.3 CHALKBOARD ACCESSORIES

- A. Factory-Applied Wood Trim: Manufacturer's standard Cherry 1-3/4" Face Mitered Corners, WLCS; MLC Deluxe: 1600 Series.
- B. Chalk tray: Manufacturer's standard, continuous.
  - 1. Solid Type: Extruded aluminum with ribbed section and smoothly curved exposed ends.

## 2.4 FABRICATION

- A. Porcelain-Enamel Visual Display Assemblies: Laminate porcelain-enamel face sheet and backing sheet to core material under heat and pressure with manufacturer's standard flexible, waterproof adhesive.

## 2.5 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining 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 substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance of the Work.
- B. Examine walls and partitions for proper preparation and backing for visual display surfaces.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair the performance of and affect the smooth, finished surfaces of visual display boards, including dirt, mold, and mildew.

- C. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, projections, depressions, and substances that will impair bond between visual display surfaces and wall surfaces.
  - 1. Prime wall surfaces indicated to receive direct-applied, visual display tack wall panels and as recommended in writing by primer/sealer manufacturer and wall covering manufacturer.
  - 2. Prepare surfaces to receive visual display wall coverings and test for moisture according to requirements specified in Division 09 Section "Wall Coverings."
  - 3. Prepare substrates indicated to receive visual display wall covering as required by manufacturer's written instructions to achieve a smooth, dry, clean, structurally sound surface that is uniform in color.

### 3.3 INSTALLATION, GENERAL

- A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.
  - 1. Mounting Height: 36 inches (914 mm) above finished floor to top of chalk tray.

### 3.4 CLEANING AND PROTECTION

- A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.
- B. Touch up factory-applied finishes to restore damaged or soiled areas.
- C. Cover and protect visual display surfaces after installation and cleaning.

END OF SECTION 101100

## SECTION 220010 - GENERAL PROVISIONS - PLUMBING

### PART 1 - GENERAL

#### 1.1 SCOPE:

- A. Bids of work covered by each section of these specifications shall be based on the layout and equipment as shown and specified with only such approved substitutions as are allowed. Drawings show general arrangement of piping. Because of small scale of drawings, it is not possible to indicate all offsets, fittings, and accessories, which may be required. Contractor shall carefully investigate structural and finish conditions affecting his work and shall arrange such work accordingly, furnishing such fittings, traps, valves, and accessories as may be required to meet such conditions. Where locations make it necessary or desirable from Contractor's standpoint to make changes in arrangements or details shown on drawings, he may present suggestions for such changes and obtain Engineer's approval prior to making such changes.

#### 1.2 CODES:

- A. All work under this division shall be in strict compliance with "International Codes" and all applicable Codes and Regulations of the City of Columbia, South Carolina.

#### 1.3 MATERIAL AND SHOP DRAWINGS:

- A. Use only new materials and the standard product of a single manufacturer for each article of its type unless specifically mentioned otherwise. Materials and workmanship in the case of assembled items shall conform to the latest applicable requirements of NFPA, ASME, NEC, ASTM, AWWA, NEMA, and ANSI.
- B. Schedule submittals to expedite work. Unless otherwise indicated in this Section, submittals shall be submitted electronically within 30 days of date of Notice to Proceed. Identify Project, Contractor, subcontractor, supplier, manufacturer, pertinent drawing sheet and detail numbers, and associated specification section numbers. A table of contents shall be included in the front of the submittal with tabs indicating each section. Identify variations from requirements of Contract Documents.
- C. Contractor responsibilities:
  - 1. Review submittals prior to transmittal. Verify compatibility with field conditions and dimensions, product selections and designations, quantities, and conformance of submittal with requirements of Contract Documents.

Return non-conforming submittals to preparer for revision rather than submitting to Engineer. Coordinate submittals to avoid conflicts between various items of work. Failure of Contractor to review submittals prior to transmittal to Engineer shall be cause for rejection. Incomplete, improperly packaged, and submittals from sources other than Contractor will not be accepted. Submittals not stamped APPROVED and signed by the Contractor will be returned to the Contractor.

2. Engineer will review and return submittals with comments. Do not fabricate products or begin work which requires submittals until return of submittal with Engineer acceptance. Promptly report any inability to comply with provisions. Revise and resubmit submittals as required within 15 days of return from Engineer. Make re-submittals under procedures specified for initial submittals. Identify all changes made since previous submittal.

D. Engineer Review:

1. Engineer will review submittals for sole purpose of verifying general conformance with design concept and general compliance with Contract Documents. Approval of submittal by Engineer does not relieve Contractor of responsibility for correcting errors which may exist in submittal or from meeting requirements of Contract Documents. After review, Engineer will return submittals marked as follows to indicate action taken:
2. No Exception: Part of work covered by submittal may proceed provided it complies with requirements of Contract Documents. Final acceptance will depend upon that compliance. The term "approved" shall only indicate that there is no exception taken to the submittal.
3. No Exception As Corrected: Part of work covered by submittal may proceed provided it complies with notations and corrections on submittal and requirements of Contract documents. Final acceptance will depend upon that compliance.
4. Revise And Resubmit: Do not proceed with part of work covered by submittal including purchasing, fabricating, and delivering. Revise or prepare new submittal in accordance with notations and resubmit.

E. Items Requiring Submittal are as Follows:

1. All items listed in MANUFACTURERS: Section of 220010

#### 1.4 ASBESTOS:

- A. At any time the Contractor encounters asbestos, he shall immediately stop work in the immediate area and suspend any further work until asbestos is removed. Contractor shall, upon discovery of asbestos, notify owner, or owner's representative, who shall be responsible for the removal of the asbestos, 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.

#### 1.5 LEAD FREE:

- A. All solder, flux and pipe used in water system must be lead free. Lead free is defined as less than 0.2 percent lead in solder and flux and less than 8.0 percent lead in pipes and fittings.

#### 1.6 AMERICANS WITH DISABILITIES ACT:

- A. All items or work under this division of the specifications shall comply with guidelines as set forth in the Americans with Disabilities Act.

#### 1.7 PERMITS AND FEES:

- A. Obtain permits, licenses, pay fees, etc. as required for performance of Contract. Arrange for necessary inspections required by governing authority and deliver certificates of approval to Architects or their representatives. File plans required by governing body.

#### 1.8 DEFINITIONS:

- A. In this division of the specifications and accompanying drawings, the following definitions apply:
- B. Provide: To purchase, pay for, transport to the job site, unpack, install, and connect complete and ready for operation; to include all permits, inspections, equipment, material, labor, hardware, and operations required for completion and operation.
- C. Install (Installed): To furnish and install complete and ready for operation.
- D. Furnish: To purchase, pay for, and deliver to the job site for installation by others.

- E. The Plumbing Contractor is cautioned that "furnish" requires coordination with others. Such coordination costs shall be included as part of Plumbing Contractor's bid.

#### 1.9 VERIFICATION OF DIMENSIONS, ETC.:

- A. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work, working conditions, verify all dimensions in the field, advise the Engineer of any discrepancy, and submit shop drawings of any changes he proposes to make in quadruplicate for approval before starting the work. Contractor shall install all equipment in a manner to avoid building interference.

#### 1.10 PROTECTION OF ADJACENT WORK:

- A. Protect work and adjacent work at all times with suitable covering. All damage to work in place caused by Contractor shall be repaired and restored to original good and acceptable condition using same quality and kinds of materials as required matching and finishing with adjacent work.

#### 1.11 EXISTING EQUIPMENT AND MATERIALS:

- A. All items of equipment removed under this section of the specifications shall become the property of this Contractor shall be promptly removed from this site.

#### 1.12 CLEAN-UP:

- A. At the completion of the contract work, all areas where work has been performed shall be left clean. All trash shall be removed from the site by the Contractor.

#### 1.13 APPROVALS AND SUBSTITUTIONS:

- A. Notwithstanding any reference in the specifications to any article, device, product, material, fixture, form, or type of construction by name, make or catalog number, such references shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition; and the Contractor, in such cases, may at his option use any article, device, product, material, fixture, or type of construction which, in the judgment of the Engineer, expressed in writing, is equal to that specified.
- B. Requests for written approval to substitute materials or equipment considered by the Contractor as equal to those specified, shall be submitted for approval to the Engineer ten (10) days prior to bid date. Requests shall be accompanied by samples, descriptive literature and engineering information as necessary to fully

identify and evaluate the product. No increase in the contract sum will be considered when requests are not approved.

1.14 WARRANTY:

- A. The Contractor for each section of the work under this division will furnish to the Owner a written warranty for the installation as installed.
- B. Each warranty shall extend for a period of one year following substantial completion and acceptance of construction. They shall be endorsed by the Contractor.

1.15 MANUFACTURERS:

- A. In order to define requirements for quality and function of manufactured products, and requirements such as size, gauges, grade selection, color selections and like specifications requirements, the specifications as written hereinafter are based upon products of those manufacturers who are named hereinafter under various specifications for materials.
- B. In addition to products of manufacturers named hereinafter in the specifications, equivalent products of the following named manufacturers will be acceptable under the base bid:
  - 1. Plumbing Fixtures:
    - a) Just Manufacturing Company, Elkay Manufacturing Company, Bradley Corporation
  - 2. Plumbing Trim:
    - a) Delta Commercial Faucet Company, Speakman, Moen, Zurn Industries
  - 3. Supplies, Traps, Etc.:
    - a) McGuire Manufacturing Company, Engineered Brass Company, Zurn Industries

## PART 2 - PRODUCTS

### 2.1 VALVES:

- A. All valves provided under each section shall be of a single manufacturer unless otherwise specified.

## PART 3 - EXECUTION

### 3.1 FLOOR, WALL AND CEILING PLATES:

- A. Where pipes pass through floors, finished walls, or ceilings, fit with chromium plate cast brass plates or chromium plated steel plates.

### 3.2 CLEANING:

- A. All surfaces on metal, pipe, insulation covered surfaces, and other equipment furnished and installed under this division of the specifications shall be thoroughly cleaned of grease, scale, dirt and other foreign material.

### 3.3 TESTING (PIPING):

- A. Upon completion of each system of work under this division, and at a designated time, all piping shall be pressure tested for leaks in the presence of the owner. Owner shall be notified five days before testing is to be conducted and all tests shall be conducted in the presence of the owner. All equipment required for test shall be furnished by contractor at his expense. All tests shall be performed as specified hereinafter. If inspection or tests show defects, such defective work or material shall be replaced and inspection and tests repeated at no additional cost to owner. Make tight any leaks. Repeat tests until system is proven tight. Caulking of leaks will not be permitted. All equipment not capable of withstanding the test pressure shall be valved off during the test.

End of Section 220010

## SECTION 220500 - PLUMBING

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED:

- A. General Requirements: This Section of the Specifications and related drawings describe requirements pertaining to plumbing work. All work shall conform to Section 220010, General Provisions - Plumbing. Work includes, but is not necessarily limited to:
  - 1. All fixtures noted or specified.
  - 2. Other plumbing indicated on drawings, specified herein, or required for complete and proper installation in accordance with applicable codes and regulations.
- B. Upon completion of work, all fixtures, devices, etc. for use by persons with disabilities shall meet all requirements as set forth by the Americans with Disabilities Act (ADA).

### PART 2 - PRODUCTS

#### 2.1 FIXTURES AND FIXTURE TRIM:

- A. Fixtures and fixture trim shall be as called for on fixture schedule shown on drawings.

### PART 3 - EXECUTION

#### 3.1 EXISTING CONDITIONS:

- A. Verify locations and inverts of existing and proposed pipes. Location of structural elements, locations and sizes of chases, type and method of construction of floors, walls, partitions, etc.
- B. Drawings do not indicate all offsets, fittings, and specialties. Examine other drawings, investigate conditions to be encountered and arrange work accordingly, furnishing required fittings, valves, specialties, etc. without extra charge. Where conditions necessitate rearrangement, submit for approval sketches showing proposed arrangement.

#### 3.2 INSTALLATION:

- A. GENERAL:
  - 1. Protect pipe openings and drains by plugs or caps. Duct tape will not be acceptable. Clean all stoppages.

2. Unless otherwise shown, install piping concealed, straight, without sags or pockets and graded for drainage. Cut pipe ends square and ream. Before assembly, clean dirt, scale and chips.
3. Schedule meetings with other trades before and during installation to avoid conflicts and ensure that pipes and equipment are installed in best manner, taking into consideration headroom, maintenance, appearance and replacement.

### 3.3 TRAPS:

- A. Provide each fixture with a trap when connection to drainage system is required. Place each trap as near to fixture as possible. No fixture shall be double trapped.

### 3.4 FIXTURES AND FIXTURE TRIM:

- A. Provide sink with angle stops.
- B. All fixtures and trimmings shall be designed to prevent backflow of polluted water or waste into water supply system.
- C. Except where noted otherwise, exposed piping fittings and trimmings shall be chromium plated over nickel-plated brass with polished, bright surfaces.

End of Section 220500

## SECTION 230010 - GENERAL PROVISIONS - HVAC

### PART 1 – GENERAL

#### 1.1 SCOPE:

- A. Bids of work covered by each section of these specifications shall be based on the layout and equipment as shown and specified with only such approved substitutions as are allowed. Drawings show general arrangement of ductwork and piping. Because of small scale of drawings, it is not possible to indicate all offsets, fittings, and accessories, which may be required. Contractor shall carefully investigate structural and finish conditions affecting his work and shall arrange such work accordingly, furnishing such fittings, traps, valves, and accessories as may be required to meet such conditions. Where locations make it necessary or desirable from Contractor's standpoint to make changes in arrangements or details shown on drawings, he may present suggestions for such changes and obtain Engineer's approval prior to making such changes.

#### 1.2 CODES:

- A. All work under this division shall be in strict compliance with "International Codes" and all applicable Codes and Regulations of the State of South Carolina.

#### 1.3 MATERIAL AND SHOP DRAWINGS:

- A. Use only new materials and the standard product of a single manufacturer for each article of its type unless specifically mentioned otherwise. Materials and workmanship in the case of assembled items shall conform to the latest applicable requirements of NFPA, ASME, NEC, ASTM, AWWA, NEMA, and ANSI.
- B. Schedule submittals to expedite work. Unless otherwise indicated in this Section, submittals shall be submitted within 30 days of date of Notice to Proceed. Provide six (6) copies of submittals for review and approval. Provide folders or binders for each submittal. All submittals shall be bound in a single volume. Partial lists will not be considered and will be returned to the Contractor. Controls may be submitted separately and shall be submitted no later than 60 days of notice to proceed. Identify Project, Contractor, subcontractor, supplier, manufacturer, pertinent drawing sheet and detail numbers, and associated specification section numbers. A table of contents shall be included in the front of the submittal with tabs indicating each section. Identify variations from requirements of Contract Documents.

C. Contractor responsibilities:

1. Review submittals prior to transmittal. Verify compatibility with field conditions and dimensions, product selections and designations, quantities, and conformance of submittal with requirements of Contract Documents. Return non-conforming submittals to preparer for revision rather than submitting to Engineer. Coordinate submittals to avoid conflicts between various items of work. Failure of Contractor to review submittals prior to transmittal to Engineer shall be cause for rejection. Incomplete, improperly packaged, and submittals from sources other than Contractor will not be accepted. Submittals not stamped APPROVED and signed by the Contractor will be returned to the Contractor.
2. Where required by specifications or otherwise needed, prepare drawings illustrating portion of work for use in fabricating, interfacing with other work, and installing products. Prepare 1/4" per foot scale drawings of all mechanical rooms when substituting items of equipment that are not the basis for design. All equipment submitted shall be of adequate size and physical arrangement to allow unobstructed access when installed, for routine maintenance, coil removal, shaft removal, motor removal and other similar operations. Contract Drawings shall not be reproduced and submitted as shop drawings. Drawings shall be 8-1/2 by 11 inches minimum and 24 by 36 inches maximum. Title each drawing with Project name and reference the sheet the drawing corresponds to.
3. Provide product data such as manufacturer's brochures, catalog pages, illustrations, diagrams, tables, performance charts, and other material which describe appearance, size, attributes, code and standard compliance, ratings, and other product characteristics. Provide all critical information such as reference standards, performance characteristics, capacities, power requirements, wiring and piping diagrams, controls, component parts, finishes, dimensions, and required clearances. Submit only data which are pertinent. Mark each copy of manufacturer's standard printed data to identify products, models, options, and other data pertinent to project.
4. Control diagrams: Show relative positions of each component as a system diagram. Provide points list, wiring diagram and schedule of all products and components used in system.
5. Engineer will review and return submittals with comments. Do not fabricate products or begin work which requires submittals until return of submittal with Engineer acceptance. Promptly report any inability to comply with provisions. Revise and resubmit submittals as required within 15 days of return from Engineer. Make re-submittals under procedures

specified for initial submittals. Identify all changes made since previous submittal.

D. Engineer Review:

1. Engineer will review submittals for sole purpose of verifying general conformance with design concept and general compliance with Contract Documents. Approval of submittal by Engineer does not relieve Contractor of responsibility for correcting errors which may exist in submittal or from meeting requirements of Contract Documents. After review, Engineer will return submittals marked as follows to indicate action taken:
2. No Exception: Part of work covered by submittal may proceed provided it complies with requirements of Contract Documents. Final acceptance will depend upon that compliance. The term "approved" shall only indicate that there is no exception taken to the submittal.
3. No Exception As Corrected: Part of work covered by submittal may proceed provided it complies with notations and corrections on submittal and requirements of Contract documents. Final acceptance will depend upon that compliance.
4. Revise And Resubmit: Do not proceed with part of work covered by submittal including purchasing, fabricating, and delivering. Revise or prepare new submittal in accordance with notations and resubmit.

E. Samples:

1. Submit samples to illustrate functional and aesthetic characteristics of products with all integral parts and attachment devices. Include full range of manufacturer's standard finishes, indicating colors, textures, and patterns for A/E selection. Submit the number of samples specified in individual specification sections. One sample will be retained by A/E.

F. Items Requiring Submittal are as Follows:

1. Test and Balance
2. Insulation
3. All items listed in MANUFACTURERS: Section of 230010

1.4 ASBESTOS:

- A. At any time the Contractor encounters asbestos, he shall immediately stop work in the immediate area and suspend any further work until asbestos is removed.

Contractor shall, upon discovery of asbestos, notify owner, or owner's representative, who shall be responsible for the removal of the asbestos, 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.

1.5 LEAD FREE:

- A. All solder, flux and pipe used in water system must be lead free. Lead free is defined as less than 0.2 percent lead in solder and flux and less than 8.0 percent lead in pipes and fittings.

1.6 AMERICANS WITH DISABILITIES ACT:

- A. All items or work under this division of the specifications shall comply with guidelines as set forth in the Americans With Disabilities Act.

1.7 PERMITS AND FEES:

- A. Obtain permits, licenses, pay fees, etc. as required for performance of Contract. Arrange for necessary inspections required by governing authority and deliver certificates of approval to Architects or their representatives. File plans required by governing body.

1.8 DEFINITIONS:

- A. In this division of the specifications and accompanying drawings, the following definitions apply:
- B. Provide: To purchase, pay for, transport to the job site, unpack, install, and connect complete and ready for operation; to include all permits, inspections, equipment, material, labor, hardware, and operations required for completion and operation.
- C. Install (Installed): To furnish and install complete and ready for operation.
- D. Furnish: To purchase, pay for, and deliver to the job site for installation by others.
- E. The Mechanical Contractor is cautioned that "furnish" requires coordination with others. Such coordination costs shall be included as part of Mechanical Contractor's bid.

#### 1.9 CUTTING AND PATCHING:

- A. Cutting of walls, floors, roofs, partitions, and ceiling, required for proper installation of the systems shall be performed under this contract.
- B. Cutting shall be done in a neat, workmanlike manner. No joist, beams, girders, columns, or other structural members may be cut without written permission from the Engineer. When possible, holes shall be saw-cut or core drilled neat to minimize patching.
- C. Re-routing of existing pipes, insulation, etc. as required for installation of new system is included in this work. All work shall be done in accordance with specifications for new work of the particular type involved.
- D. Patching shall be performed to match existing structures, exterior walls and roofs, and shall form watertight installation.

#### 1.10 VERIFICATION OF DIMENSIONS, ETC.:

- A. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work, working conditions, verify all dimensions in the field, advise the Engineer of any discrepancy, and submit shop drawings of any changes he proposes to make in quadruplicate for approval before starting the work. Contractor shall install all equipment in a manner to avoid building interference.

#### 1.11 COORDINATION WITH OTHER TRADES:

- A. Coordinate all work of each section with work of other sections to avoid interference. Bidders are cautioned to check their equipment against space available as indicated on drawings, and shall make sure that proposed equipment can be accommodated. Before beginning work under each section, inspect installed work of other trades and verify that such work is complete to the point where the installation may properly begin.
- B. Where equipment supplied by an approved manufacturer is substituted for the specified equipment, the Contractor will be responsible for coordinating any changes required in his work or other trades work, including but not limited to electrical requirements, structural steel requirements and space requirements. Any additional costs required to make changes to other trades work shall be borne by this contractor.

1.12 PROTECTION OF ADJACENT WORK:

- A. Protect work and adjacent work at all times with suitable covering. All damage to work in place caused by Contractor shall be repaired and restored to original good and acceptable condition using same quality and kinds of materials as required to match and finish with adjacent work.

1.13 EXISTING EQUIPMENT AND MATERIALS:

- A. All items of equipment removed under this section of the specifications shall become the property of this Contractor shall be promptly removed from this site.

1.14 FIRESTOPPING:

- A. Provide firestopping for all mechanical penetrations through fire resistant walls and shaft enclosures, and floor, ceiling, and roof elements of fire resistant assemblies. Firestopping shall provide rating comparable to rating of structure it protects.
- B. Firestopping materials currently classified with UL as "Through Penetration Firestop Systems".
- C. Firestopping materials shall have been tested in accordance with UL 1479 "Fire Tests of Through Penetration Firestops".

1.15 CLEAN-UP:

- A. At the completion of the contract work, all areas where work has been performed shall be left clean. All trash shall be removed from the site by the Contractor.

1.16 APPROVALS AND SUBSTITUTIONS:

- A. Notwithstanding any reference in the specifications to any article, device, product, material, fixture, form, or type of construction by name, make or catalog number, such references shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition; and the Contractor, in such cases, may at his option use any article, device, product, material, fixture, or type of construction which, in the judgment of the Engineer, expressed in writing, is equal to that specified.
- B. Requests for written approval to substitute materials or equipment considered by the Contractor as equal to those specified, shall be submitted for approval to the Engineer ten (10) days prior to bid date. Requests shall be accompanied by samples, descriptive literature and engineering information as necessary to fully

identify and evaluate the product. No increase in the contract sum will be considered when requests are not approved.

- C. The Contractor shall bear the burden and cost of coordinating with all trades any changes in work required by substitutions, including but not limited to electrical connections, additional components required, service clearance, etc.

#### 1.17 AS-BUILT DRAWINGS:

- A. The Contractor shall keep a record set of drawings on the job; and as construction progresses shall show the actual installed location of all items, material, and equipment on these job drawings. Indicate approved changes in red ink.
- B. At the time of final completion, a corrected set of As-Built drawings shall be delivered to the Engineer. A final set of reproducible drawings with job information that reflects the actual installation shall be prepared by the Engineer and given to the Owner.

#### 1.18 WARRANTY:

- A. The Contractor for each section of the work under this division will furnish to the Owner a written warranty for the installation as installed, including controls and all other equipment covered under each section of the specifications, to perform in a quiet, efficient, and satisfactory manner with no more than normal service.
- B. Each warranty shall extend for a period of one year following substantial completion and acceptance of construction. They shall be endorsed by the Contractor. Refrigeration compressors shall have a five (5) year warranty.

#### 1.19 MANUFACTURERS:

- A. In order to define requirements for quality and function of manufactured products, and requirements such as size, gauges, grade selection, color selections and like specifications requirements, the specifications as written hereinafter are based upon products of those manufacturers who are named hereinafter under various specifications for materials.
- B. In addition to products of manufacturers named hereinafter in the specifications, equivalent products of the following named manufacturers will be acceptable under the base bid:

##### 1. Fan Coil Units:

- a) ETI, Carrier Air Conditioning Company, The Trane Company

2. Air Distribution:
  - a) Metal Industries, Price Company, Titus Manufacturing Company, Nailor Industries, Anemostat Products Division, Krueger, J & J Register Co., Carnes Company, Tuttle and Bailey, AirGuide Manufacturing
3. Dampers:
  - a) Ruskin Manufacturing Company, NCA Manufacturing, Safe Air/Dowco, Inc., Cesco Products, Inc., Leader Industries, Pottorff, Arrow United, Young Regulator, Nailor
4. Fire and Smoke Dampers:
  - a) Ruskin Manufacturing Company, NCA Manufacturing, Safe Air/Dowco, Inc., Cesco Products, Inc., Leader Industries, Pottorff, Prefco Products, Nailor
5. Seismic and Vibration Equipment:
  - a) Mason Industries, Vibration Mountings & Controls, Inc., Amber/Booth Company, Vibration Eliminator Co., Kinetics Noise Control
6. Temperature and Air Pressure Gages:
  - a) Dwyer Instruments, Weiss Instruments, H.O. Trerice Company, Ellison Draft Gauge Company, Inc., Weksler Instrument
7. Insulation:
  - a) Owens Corning, Johns Manville, CertainTeed Corporation, Knauf Insulation
8. Temperature Controls:
  - a) Johnson Controls
9. Valves:
  - a) Crane Company, Grinnell Company, O.I.C. Valve Co., Chase Brass & Copper Company, Rockwell Manufacturing Company, Consolidated Brass Company, Hammond, Nibco.

10. Pipe Hangers:

- a) Cooper B-Line, Fee and Mason Manufacturing Company, Anvil International, Erico Caddy, Tolco a Division of Nibco

11. Identification Items:

- a) Seton Name Plate Company, W.H. Brady Company, Handley Industries, Inc.

## PART 2 - PRODUCTS

### 2.1 PAINTING:

- A. Furnish touch up paint supplied by equipment manufacturer.
- B. Coat ferrous metal surfaces that do not have factory painting or galvanizing with one coat of Sherwin Williams high heat aluminum paint.

### 2.2 NAME PLATES:

- A. All equipment provided under this division shall be labeled with a Bakelite nameplate 1" x 3" minimum with 3/8" minimum height lettering as manufactured by Seton Name Plate Company. See filter nameplate requirement below.

### 2.3 VALVES:

- A. All valves provided under each section shall be of a single manufacturer unless otherwise specified. Leave packing for all valves in good condition, replacing as necessary for completion of work. Packing is to be of an approved material suitable for required service. Valve manufacturer and pressure rating shall be cast on side of valve body. Each threaded valve shall have a union installed adjacent to it. All valves shall be of listed manufacturer as scheduled hereinafter in other sections of Division 15.

### 2.4 EQUIPMENT ACCESSORIES:

- A. Where flexible couplings are required, they shall be similar to Faulk Corporation, Type F Steelflex. All couplings shall be provided with guards.
- B. Lubrication: Provide oil level gauges, grease cups, and grease gun fittings for all equipment bearings as recommended by equipment manufacturer. All grease gun fittings shall be of a uniform type.

## 2.5 FILTERS:

- A. Provide one new set of MERV 8 pleated filters in each unit at final completion. Provide the Owner one replacement set of filters with a complete filter list indicating unit tag and size and quantity of filters needed. At each filter door provide a Bakelite nameplate 1" x 3" minimum with 1/8" minimum height lettering as manufactured by Seton Name Plate Company, that indicates the size and quantity of each filter required in that particular unit.

## 2.6 VALVE TAGS AND SCHEDULE:

- A. Provide separate typewritten list of all valves, giving number and use and control of each, on a small scale drawing outlining the general run of pipe lines and showing the location of valves for each section of work. Pipe lines in diagram shall be color coded to match piping. Drawings to be framed under glass and located in the equipment room. Provide a 1-1/2" diameter round brass numbered tag secured to each valve with "S" hook, Style P-250 BL as manufactured by Seton Name Plate Company, Brady Worldwide, Brimar Industries, or equal.

## 2.7 FIRESTOPPING MATERIALS:

- A. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste when subjected to ASTM E 119 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inches of water at the location of the test specimen for the time period equivalent to the fire resistance rating of the construction penetrated. Material shall be capable of curing in the presence of atmospheric moisture to produce durable and flexible seal, and will form airtight and watertight bonds with most common building materials in any combination including cement, masonry, steel, and aluminum.

## 2.8 SLEEVES AND OPENINGS:

- A. Provide UL certified fire stop sleeving system for all pipe penetrations through fire rated walls, floors, partitions, ceilings, floor-ceiling assemblies and roofs as tested under ASTM E814-02 "Standard Method of Fire Tests of Through Penetration Fire Stops".

## 2.9 SEISMIC RESTRAINTS:

- A. Seismic restraints shall be provided per International Building Code Chapter 16 for Category D Buildings (See Code Compliance on Drawing Cover Sheet).

## PART 3 - EXECUTION

### 3.1 PIPE FITTINGS:

- A. General: Provide complete systems of piping and fittings for all services as indicated. All pipe, valves, and fittings shall comply with American National Standards Institute, Inc. Code and/or local codes and ordinances. All fittings shall be domestically produced from domestic forgings. Cut pipe accurately to measurements established at building or site, and work into place without springing or forcing, properly clearing all windows, doors, and other openings or obstructions.
- B. Excessive cutting or other weakening of building to facilitate piping installation will not be permitted. Piping shall line up flanges and fittings freely and shall have adequate unions and flanges so that all equipment can be disassembled for repairs. Test all piping prior to insulation or concealing.
- C. All welded pipe and fittings shall be delivered to job with machine beveled ends. Where necessary, beveling may be done in field by gas torch. In which case, surfaces shall be thoroughly cleaned of scale and oxidation after beveling.

### 3.2 WELDING:

- A. All welding shall be done by certified welders. Welded pipe shall have flanges at valves and elsewhere as required to permit disassembly for maintenance. Tests and reports shall be as follows:
- B. Qualification test of each welder prior to beginning of construction.
- C. One sample of weld of each welder's work selected at random by Engineer during construction period.
- D. Procedure for making tests of welds shall be as outlined in Section 9 of ASME Boiler Construction Code. These tests shall be made by an approved testing laboratory, and a report furnished to Engineer. Report on qualification tests shall be made for gas welding and electric arc welding on steel in horizontal fixed position. A testing laboratory representative shall witness making of welds made for qualification tests. All costs of testing of welds shall be paid by Contractor.

### 3.3 PIPE:

- A. All piping material shall be as specified in other sections of this division.

- B. Fittings and Connections: All turns and connections shall be made with long radius fittings as scheduled hereinafter. No miter connections will be permitted in welded work.
- C. Pipe joints shall be made in accordance with the following applicable specifications:
- D. Weld-O-Lets, or similar approved fittings, may be used if branch pipe is less than one-half the size of the main. In all other cases, welding fittings shall be used. All welded piping shall be as specified hereinbefore.
- E. Make all solder joints with non-corrosive type flux 95 Percent tin and 5 percent antimony alloy solder.

### 3.4 SLEEVES:

- A. Provide all sleeves in floors, beams, wall, roof, etc. as required for installing work of this division unless otherwise specified hereinafter. Size sleeves for insulated pipe to accommodate both pipe and insulation. Construct vertical sleeves in connection with concealed piping of 22 gauge galvanized iron. Sleeves thru fire-rated assemblies shall be firestopped as specified herein and insulation shall not pass thru sleeve unless material complies with firestopping specified.

### 3.5 PIPE HANGERS, SUPPORTS AND INSERTS:

- A. Pipe hangers, supports and inserts shall comply with Table 305.4 of the 2006 International Mechanical Code and be provided as follows:
- B. All piping shall be supported by forged steel hangers or brackets suitably fastened to structural portion. Wall brackets shall be Fee & Mason Fig. No. 151. Provide lock nuts on all adjustable hanger assemblies.

#### PIPE SIZE - INCHES

	1/2 – 2	2-1/2 – 4	6 – Up	Wall Plate Hanger
Grinnel	104	260	171	139
Fee & Mason	199	239	170	302
Elcen	92	12	15	---

- C. Hanger or Support Spacing (unless specified different hereinafter):

#### 1. Copper Pipe:

Nominal Pipe Size – Inches    Maximum Span - Feet

1-1/4" and under	6'
1-1/2" and above	10'

2. Steel Pipe:

12'- 0" intervals

D. Size hangers on insulated piping to permit insulation and saddles to pass full size through hanger.

E. Trapeze Hangers:

1. May be used for groups of pipes close together and parallel. Trapeze hangers may be constructed from structural channel or angle irons or from pre-formed channel shapes. All pipe lines must be held on specific centers by U bolts, clips or clamps.

F. Inserts:

1. For each hanger on horizontal pipes, installed before concrete is poured. Inserts shall permit horizontal adjustment of the nut.

G. Special and Additional Supports:

1. Special supports will be required where hangers cannot be used. Horizontal pipes shall be secured to prevent vibration or excessive sway. Where pipes must be laid on fill, they shall be supported at each joint by brick or concrete supports carried down into solid, natural earth. Where required, provide additional hangers to secure required level, slope or drainage, and also to prevent sagging. Provide a hanger within one foot of each elbow. Provide all miscellaneous steel required for pipe supports, anchors, etc.

### 3.6 INSULATION SHIELDS:

- A. Provide all insulated piping with 10-inch long (16 gauge) protective galvanized sheet metal shields extending 120 degrees around bottom of insulated pipe.

### 3.7 SWING CONNECTIONS:

- A. Swing connections shall be provided at all points of expansion. Install all connections to equipment, etc. in a manner to allow for normal pipe movement due to thermal expansion without causing undue stresses to be exerted on said equipment.

### 3.8 REDUCING FITTINGS:

- A. Where pipe lines reduce in size, provide reducing fittings wherever possible. Provide eccentric fittings or reducers where horizontal runs of supply lines reduce in size, and install so that there will be no air trapped in hot or cold water systems. In screwed work, no bushings shall be used unless there is a difference of two standard pipe sizes between inner and outer threads.

### 3.9 DIELECTRIC CONNECTIONS:

- A. Wherever any connection is made between dissimilar metals, provide dielectric pipe couplings or unions.

### 3.10 ELECTRIC WORK:

- A. All motors, and motor starters shall be furnished for items installed under this division of the specifications. All starters shall be magnetic type. All electrically operated equipment shall have readily accessible nameplates summarizing electrical information (i.e., voltage, phase, horsepower, watts, or amperes). Starters shall be as manufactured by General Electric Company, Westinghouse Electric Company, Cutler-Hammer Inc., or Square D Company. A.C. magnetic starters shall be across-the-line type. Starters shall provide overload protection in each phase and shall otherwise conform to all applicable requirements of these specifications. All magnetic starters shall be combination type, Motor Circuit Protector (MCP) type having interrupting rating equal to or greater than the available short circuit current, with "HAND-OFF-AUTO" selector switch, auxiliary contact, and pilot light in cover. Provide laminated plastic nameplates with white center core for each starter.
- B. For motors controlled by variable frequency drives, provide shaft grounding on the motor equal to Aegis bearing protection ring.
- C. All control conduit and wires and control devices shall be furnished and installed under this division. All contactors shall be of the mechanically held type. All control wiring within starters shall be installed in a workmanlike manner and neatly laced. All control wiring shall be color coded.
- D. All work shall conform with the applicable requirements of the National Electrical Codes. All electrical power characteristics shall be as indicated. All devices, which make and/or break electrical circuits, shall be rated for at least 125 percent of the load.

- E. Relays, contactors, and control devices shall open all ungrounded conductors. All fuses shall be current limiting time delay type equal to Bussman "LPN", 250 volt or "LPS", 600 volt.
- F. Control voltage shall not exceed 120 volts. Control power shall be taken from line terminals of controllers. Where necessary, control transformers shall be provided and shall conform to NEMA Standards, properly sized, and shall be properly fused. Where control voltage is 120 volts, control conductors shall be color-coded.
- G. Electrical power service and connections to all equipment in this division will be made under electrical division of the work.
- H. Manual motor starters with overload protection shall be flush mounted type with pilot light. Square D Catalog No. 2510-FS-1P or General Electric, or Westinghouse equivalent.
- I. Duct smoke detectors shall be provided under electrical division and installed under this division. This division shall provide interlock wiring required for fan shutdown and smoke damper control. Power wiring and fire alarm communication wiring shall be provided under the electrical division.

### 3.11 ITEMS OF MECHANICAL EQUIPMENT:

- A. All items of mechanical equipment electrically operated shall be in complete accordance with paragraph in this division entitled "Electrical Work". Mechanical equipment, other than individually mounted motors, shall be factory pre-wired to a single-set of line terminals and to a single load terminal strip to match load terminals on equipment. Each step shall have properly sized contactor and overcurrent protection.
- B. Mechanical equipment electrical components shall all be bonded together and connected to electrical system ground.

### 3.12 CLEANING:

- A. All surfaces on metal, pipe, insulation covered surfaces, and other equipment furnished and installed under this division of the specifications shall be thoroughly cleaned of grease, scale, dirt and other foreign material.
- B. Upon complete installation of ducts, clean entire system of rubbish, plaster, dirt, etc., before installing any outlets. After installation of outlets and connections to fans are made, blow out entire system with all control devices wide open.

### 3.13 SYSTEM BALANCING:

- A. The HVAC Contractor is responsible for the entire Test & Balance process. The contractor shall employ an independent balancing firm specializing in total system air balancing as approved by the engineer and certified by the AABC or NEBB. The balancing firm shall be employed prior to installation of any ductwork. Provide all labor, engineering and test equipment required to test, adjust, and balance all heating, ventilating, air conditioning, and hydronic systems.
- B. The Contractor is responsible to have a functioning system prior to Testing and Balancing, to provide a joint and cooperative effort to coordinate the test and balance, and to solve any problems in balancing and controls in order to establish proper system performance before leaving the job. The Contractor is responsible for providing the Test and Balance Agency (TAB) with a complete set of project drawings, specifications, and submittals, and for providing and installing new sheave or sheaves, new belts, as required, if a change in fan speed is necessary which cannot be made by adjusting the sheave originally installed. When requested by the Engineer, the TAB Agency will review plans and specifications of the systems prior to installation and submit a report of any deficiencies, which could preclude proper adjusting, balancing and testing of the system. The TAB agency shall submit copies of deficiency reports along with a preliminary report to the Engineer for review prior to final submittal.
- C. Instruments used will be those that meet the instrument requirements for Agency Qualifications of the AABC as published in the NEBB "Procedural Standards for Testing Adjusting and Balancing of Environmental Systems" or the AABC "National Standards for Total System Balance".
- D. Fan air volume shall be adjusted to within 5% of design, and diffuser air volumes to within 10% of design.
- E. Water volumes shall be adjusted to within 10% of design whenever balancing cocks or flow meters are installed. Where automatic flow control valves are shown, pressure drop readings shall be taken across the coils to verify flow. After system balancing, the Mechanical Contractor shall trim pump impellor or adjust pump speed to maintain flow at design conditions. The pump flow shall not be restricted by valves to reduce flow volume.
- F. Reporting (Submit five copies of final Test Report)
  - 1. Complete nameplate data and equipment schedule number for all rotating equipment.
  - 2. Design and actual operating data for all rotating equipment including inlet and outlet data, flow rates, amps, voltage and rpm.

3. Design and actual duct and diffuser volumes. Prepare a diagram showing flow measurement points.
4. Design and actual water flow rates. Prepare a diagram showing flow measurement points.
5. Record coil air pressure drop, filter pressure drop, external static pressure, and fan static pressure.
6. Record flow rates, temperatures and pressures across each water coil, condenser and other heat exchangers.
7. Heating equipment nameplate data, equipment schedule number design data, and operating data at maximum achievable load conditions.

### 3.14 TESTING (PIPING):

- A. Upon completion of each system of work under this division, and at a designated time, all piping shall be pressure tested for leaks in the presence of the owner. Owner shall be notified five days before testing is to be conducted and all tests shall be conducted in the presence of the owner. All equipment required for test shall be furnished by contractor at his expense. All tests shall be performed as specified hereinafter. If inspection or tests show defects, such defective work or material shall be replaced and inspection and tests repeated at no additional cost to owner. Make tight any leaks. Repeat tests until system is proven tight. Caulking of leaks will not be permitted. All equipment not capable of withstanding the test pressure shall be valved off during the test.
- B. Chilled Water and Hot Water Systems: Subject system to 1-1/2 times the working pressure, but not less than 100 psig hydrostatic test pressure. All water piping shall be balanced to produce water quantities as indicated with all automatic control valves wide open.

### 3.15 PIPE CODING:

- A. After all piping has been painted with color-coding, all piping installed under this division shall be coded and marked with "Perma-Code" pipe markers as manufactured by W.H. Brady Company, 712 Glendale Avenue, Milwaukee, Wisconsin. Markers shall be applied to properly identify piping, but in no case shall they be applied more than 20 feet apart. Markers shall be 1-1/8 inch by 7 inches and shall be secured by spiral wrapping with 3/4 inch wide vinyl banding tape, color matching service, at each end of marker.

### 3.16 IDENTIFICATION OF EQUIPMENT:

- A. All items of mechanical equipment shall be identified with a black bakelite label with engraved white lettering 1/2" tall. Labels shall be mechanically attached to the equipment with rivets or stainless steel screws. Thermostats and control

devices shall be identified with a black bakelite label with engraved white lettering 1/4" tall. Lettering shall correspond with the tags shown in the drawings.

3.17 ADJUSTMENT AND TRIAL RUNS:

- A. Upon completion of all work, the contractor shall operate the system in the presence of the owner for the purpose of demonstrating quiet and satisfactory operation, the proper setting of controls, safety and relief valves, and cleanliness of system. Heating and cooling shall be tested separately during periods approaching design conditions and shall fully demonstrate fulfillment of capacity requirements. Test procedures shall be in accordance with applicable portions of ASME, ASHRAE, and other generally recognized test codes as far as field conditions will permit. Any changes or adjustment required shall be made by the contractor without additional expense to owner.
- B. Document and submit all operating conditions (startup report) of equipment during trial runs and after test and balance is complete. Include in the report:
  - 1. Ambient air temperature
  - 2. Design operating temperatures and flow rates
  - 3. Entering and leaving air temperatures across each coil or heating device
  - 4. Entering and leaving water temperatures at each coil
  - 5. Entering and leaving water temperatures at each chiller, boiler or heat exchanger
  - 6. Amp draw of all motors and nameplate amps
  - 7. Voltage at each piece of equipment

3.18 OPERATION AND MAINTENANCE INSTRUCTIONS, AND MAINTENANCE MANUAL:

- A. Upon completion of work, and at a time designated by the engineer, a competent employee of the contractor shall be provided to instruct a representative of the owner in the operation and maintenance of the system.
- B. Minimum instruction period shall be:
  - 1. Air Conditioning System - 1 day
- C. Maintenance Manuals: The contractor shall compile and bind five (5) sets of all manufacturer's instructions and descriptive literature on all items of equipment furnished under this work. These instructions shall be delivered through the general contractor to the engineer for approval prior to final inspection.

D. Instructions shall include:

1. Warranty letter signed by the Mechanical Contractor.
2. Index for each section with each section properly identified.
3. Complete equipment list with model and serial numbers.
4. Complete equipment list with filter sizes and quantities.
5. Copy of one complete, approved submittal for each equipment section.
6. Description of each system, including manufacturer's literature for all items.
7. Start-up and shut-down description for each system.
8. Suggested operating and maintenance instructions with frequency of maintenance indicated.
9. Parts list for all items of equipment.
10. Name, address, and telephone number of nearest sales and service organization for all items of equipment.
11. Startup reports.
12. Test and Balance Reports

E. Manuals shall be 8-1/2 x 11 inch text pages bound in three ring expansion binders with a hard durable cover with clear plastic pocket on front for title page. Prepare binder covers with printed subject title of manual, title of project, date, and volume number when multiple binders are required. Printing shall be on face and spine. Provide a table of contents for each volume. Internally subdivide the binder contents with divider sheets with typed tab titles under reinforced plastic tabs. Provide directory listing as appropriate with names addresses, and telephone numbers of design consultant, Contractor, subcontractors, equipment suppliers, and nearest service representatives.

End of Section 230010

## SECTION 230500 – HEATING, VENTILATION and AIR CONDITIONING

### PART 1 - GENERAL

#### 1.1 General Requirements:

- A. This Section of the Specifications and related drawings describe requirements pertaining to Air Conditioning, Heating and Ventilation work, including applicable HVAC Insulation in separate Section 230700. All work shall comply with Section 230010 - General Provisions - HVAC.
- B. Construct rectangular ductwork to meet all functional criteria defined in Section VII, of the SMACNA "HVAC Duct Construction Standards Metal and Flexible" 2005 Edition. All ductwork must comply with all local, state and federal code requirements.

### PART 2 - PRODUCTS

#### 2.1 SUBMITTALS:

- A. Ductwork shop drawings must be submitted for approval by Engineer. Any ductwork installed without prior approval by the Engineer shall be replaced at the expense of the contractor.

#### 2.2 QUALITY ASSURANCE:

- A. The contractor must comply with this specification in its entirety. At the discretion of the Engineer, sheet metal gauges, and reinforcing may be checked at various times to verify all duct construction is in compliance.

#### 2.3 DUCTS, PLENUM, ETC.:

- A. As indicated on drawings, provide a system of metal ducts for supply, return and exhaust air.
- B. All sheet metal, ducts, casing, plenums, etc., of sizes indicated, shall be constructed from prime galvanized sheet steel.

#### 2.4 DUCTS THRU WALLS:

- A. Where ducts pass through masonry walls, protect duct from contact with wall by 1/2 inch thick filler of fire rated felt or sponge rubber.

- B. Provide sheet metal flashing around all duct penetrations.
- C. Ducts shall be properly sealed per the fire rating and UL assembly.

#### 2.5 INSTRUMENT TEST HOLES:

- A. Install for air handling units instrument test holes in supply, return and outside air duct. Instrument test connections shall be Ventlock Model 699-2, or equal, and shall be located in accessible locations.

#### 2.6 AIR DISTRIBUTION:

- A. Devices shall quietly and draftlessly deliver and/or remove air quantities required to attain conditions indicated. Devices shall have sponge rubber gaskets for sealing devices to walls and ceilings. Exposed surfaces shall have baked enamel finish of manufacturer's standard colors noted.
- B. All air distribution equipment and accessories shall be as scheduled on drawings.

#### 2.7 METAL DUCTWALL:

- A. All interior ducts shall be constructed of G-60 or better galvanized steel (ASTM A653) LFQ, chem treat. Exterior ductwork or duct exposed to high humidity conditions shall be constructed of G-90 or better galvanized steel LFQ, chem treat. Galvanized metal ducts shall be a minimum thickness of 24 gage.
- B. Support, access doors not part of ducts, bar or angle reinforcing damper rods and items made of uncoated mild steel shall be painted with two coats of primer or provide galvanized equivalent.
- C. Low Pressure Supply and Return Duct:
  - 1. Ductwork on low pressure supply and return systems shall be fabricated to meet minimum 2" w.g. pressure class in accordance with SMACNA Duct Construction Standard.

#### 2.8 RECTANGULAR DUCT LONGITUDINAL SEAMS:

- A. Pittsburgh lock shall be used on all longitudinal seams. All longitudinal seams will be sealed with mastic sealant. Snaplock is not acceptable.

#### 2.9 DUCT JOINTS:

- A. Ductmate or W.D.C.I. proprietary duct connection systems will be accepted as an alternative to SMACNA duct construction standards. Duct constructed using these

systems will refer to the manufacturers guidelines for sheet gauge, intermediate reinforcement size and spacing, and joint reinforcements.

- B. Ductmate 440 or a Butyl Rubber Gasket which meets Mil-C 18969B, Type II Class B, TT-C-1796A, Type II Class B, and TTS-S-001657 must also pass UL-723. This material, in addition to the above, shall not contain vegetable oils, fish oils, or any other type vehicle that will support fungal and/or bacterial growth associated with dark, damp areas of ductwork. The recommended test procedure for bacterial and fungal growth is found in 21CFR 177, 1210 closures with sealing gaskets for food containers.

## 2.10 ACCESS DOORS IN DUCTWORK:

- A. Provide access doors at all apparatus requiring service and inspection, including fire dampers and fire smoke dampers, and where indicated. Access doors for 2" pressure class duct shall be hinged or Ductmate Sandwich Access Doors as manufactured by Ductmate Industries, Inc., or equal. Access doors for 4" pressure class duct shall be Ductmate Sandwich Access Doors as manufactured by Ductmate Industries, Inc., or equal. Access doors shall be double wall construction with high density fiberglass insulation with R value equal to or greater than the duct insulation. Doors shall be of adequate size (12" x 12" minimum) as required to allow easy access to hardware which needs to be maintained. In accordance with the requirements of the International Building Code, contractor shall permanently mark any access doors or other openings that serve as a means of access to fire, smoke and fire/smoke dampers with ½" letters reading "Fire Damper", "Smoke Damper", or "Fire/Smoke Damper". Label shall be permanently and securely attached.

## 2.11 FLEXIBLE DUCT:

- A. Flexible duct to meet criteria as defined in SMACNA's 2005 Manual, HVAC Duct Construction Standards, Metal and Flexible, or as defined within. Flexible air ducts and flexible air connectors shall be tested in accordance with UL 181, and listed and labeled as Class 0 or Class 1.
- B. Flexible duct shall be constructed with a polyethylene core with foil faced insulation.
- C. Flexible duct is not allowed in lengths greater than 8', unless otherwise noted. Bends, turns, or sagging, is not accepted.

## 2.12 SEALERS:

- A. Duct sealer shall be flexible, water-based, adhesive sealant designed for use in all pressure duct systems. After curing, it shall be resistant to ultraviolet light and

shall seal out water, air, and moisture. Sealer shall be UL listed and conform to NFPA 90A & 90B. Sealer shall be Childers CP-145A, or equal.

2.13 DUCTWORK HANGER/SUPPORT:

- A. Hang and support ductwork as defined by SMACNA, Chapter 5 2005 Manual, First Edition, or as defined within. Hanger spacing not to exceed 8'.

2.14 TURNING VANES:

- A. Turning vanes shall be double wall turning vanes fabricated from the same material as the duct. Tab spacing shall be SMACNA Standard. Rail systems with non-standard tab spacings shall not be accepted. All tabs shall be used, do not skip tabs. Mounting rails shall have friction insert tabs which align the vanes automatically. Vanes shall be subjected to tensile loading and be capable of supporting 250 lbs. when fastened per the manufacturers instructions.

2.15 APPARATUS CONNECTIONS:

- A. Flexible connections: For low velocity ductwork (less than 2,400 FPM), provide flexible connections at inlet and outlet of each fan connected to ductwork and elsewhere as indicated. Flexible connections shall be 6 inches wide, waterproof and fireproof, and shall be equal to "Hardcast Connector Plus Neoprene" flexible connectors. Provide at least one inch slack.

2.16 COMBINATION FIRE SMOKE DAMPERS:

- A. Provide UL555S listed combination fire-smoke damper. Damper to be Ruskin Model FSD-36 Leakage Class II Combination Fire-Smoke Damper or approved equal. Frame shall be 5 inches by minimum 16 gauge galvanized steel hat channel, reinforced at corners. Damper blades shall be single skin 16 gauge with longitudinal grooves to strengthen blade. Flat blades are not acceptable. Bearings shall be self-lubricating stainless steel sleeve type. Provide silicone blade seals and/or metal jamb seals as required for leakage rating. Blade seals shall be mechanically attached. Glue-on seals not acceptable. Linkage shall be concealed in frame. Provide electric fuse link assembly. Provide 120v actuators, factory mounted and cycle tested. Actuators shall be 2-position, fail close. Provide factory sleeve in UL approved gauge. Sleeve shall be factory sealed to assure leakage rating. Minimum sleeve length to be 17" and shall be long enough to allow for proper duct connection on both sides of wall/ceiling. Provide factory picture frame mounting angles in UL approved gauge. Breakaway connections are required on all fire and smoke damper installations unless the damper sleeve is at least 14 gauge galvanized steel. Install dampers, mounting angles, and breakaway connections per Manufacturer's UL installation instructions.

## 2.17 MANUAL OPPOSED BLADE DAMPERS:

- A. Provide at locations shown on plans, or in accordance with details, schedules or specifications Ruskin Model CD35 manual opposed blade balancing dampers, or approved equal. Frame shall be 16 gage galvanized structural steel hat channel with tabbed corners for reinforcement. The blades shall be single skin, 16 gage galvanized steel with three longitudinal grooves for reinforcement. Bearings shall be corrosion resistant, molded synthetic sleeve type turning in an extruded hole in the damper frame. Axles shall be square or hexagonal positively locked into the damper blade. Linkage shall be concealed out of the airstream, within the damper frame to reduce pressure drop and noise. Submittal must include leakage, pressure drop, maximum velocity and maximum pressure data based on AMCA Publication 500.

## 2.18 PIPE AND FITTINGS:

- A. Schedule of pipe and fittings: Piping and fittings shall conform to requirements as indicated herein.
- B. All pipe shall be domestically produced from domestic forgings.

## 2.19 SCHEDULE OF PIPING

SERVICE	ITEM	PIPING	FITTINGS	FLANGES OR UNIONS
Hot & Chilled Water	2" and smaller	Type L, Hard drawn copper	Solder type wrought copper	Wrought solder copper to copper
	2-1/2" and larger	Black steel Sch. 40 ASTM A-53	Buttweld black steel Sch. 40	150 lb. forged forged steel slip-on
Unitary Condensate Drain	2" and smaller	Type L, Hard drawn copper	Solder type wrought copper	Wrought solder copper to copper

- 2.20 VALVES LIST: All valves of similar type shall be of a single manufacture unless otherwise specified, and be of manufacturer's highest grade.

## 2.21 AUTOMATIC FLOW CONTROL VALVES:

- A. Flow control valves shall be by Griswold Controls Isolator Y, or equal by Nexus and Flow Design Inc, forged brass body with a stainless steel flow control

cartridge assembly. The body design allows inspection or removal of cartridge without disturbing piping connections. Body has an integral handle ball valve, and a union end with interchangeable end pieces for the outlet of the valve body, and an integral 20 mesh stainless steel strainer element. The Isolator Y is provided with two pressure/temperature test valves with a hose bib adapter and cap.

## 2.22 COMBINATION STOP-BALANCING VALVES:

### A. Ball Valves:

1. Sizes up to and including 2":
  - a) Ball valves shall be NIBCO 585 ball valves, or Watts, Milwaukee, Apollo or equal, bronze body, threaded or soldered ends, 600 psi close off and memory stop with "Nib-Seal" insulated handle.

### B. Butterfly Valves:

1. Butterfly valves shall be equal to Demco Inc. - Series NE lug type or Watts, Milwaukee, Apollo or equal, with corrosion resistant stainless steel stems, bronze discs, phenolic backup ring, and shall be suitable for temperature ranges - 10° to 275° F for 2-1/2" and larger. EPT seats shall be field replaceable.
2. Handles for valves 2-1/2" thru 6" shall be infinite throttling with memory stop. Valves 8" and larger shall be gear operated with hand crank and memory stop.

### C. Circuit Setters:

1. Circuit setters shall be equal to Bell and Gossett Company - Model CB for sizes to eight inches. Up to three inches shall be of bronze and shall be constructed for a minimum of 200 psi at 250° F. Above three inches shall be of cast iron with flanged connections or ductile iron with grooved connections suitable for 175 psi working pressure. Each setter shall have meter connections for balancing. Model CB valves up to three inches shall be provided with a pre-formed polyurethane insulation unit.

## 2.23 STRAINERS:

- ### A.
- Strainers shall be equal to Spirax Sarco Company Y-pattern sediment separators, or equal by ITT or Armstrong, iron body, monel mesh screen. Sizes 2-1/2 inches and larger to be flanged pattern, Type CI-125; sizes 2 inches and smaller to be screwed pattern Type IT. Where basket type strainers are called for on drawings, they shall be Type Flanged - 125 cast iron large capacity.

## 2.24 FAN COIL UNITS - USC CONSTRUCTION:

- A. Provide Enviro-Tec Fan Coil Units Model HLP or approved equal of the type, arrangement, size, and indicated capacities and characteristics. Units shall be completely factory assembled, tested and shipped as one piece. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. All unit dimensions for each model and size shall be considered maximums. Units shall be ETL listed in compliance with UL/ANSI Standard 1995, and be certified as complying with the latest edition of ARI Standard 440.
- B. Construction:
  - 1. All unit chassis shall be fabricated of heavy gauge galvanized steel panels able to meet 125 hour salt spray test per ASTM B-117. Casing shall be internally lined with Elastomeric Closed Cell Foam Insulation. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 Flame Spread and Smoke Developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21. Polyethylene insulation is not acceptable.
  - 2. All concealed units shall have a minimum 1-1/2" duct collar on the discharge. Plenum and exposed units shall have a minimum 3/4" duct collar on the return.
  - 3. All exposed units shall have exterior panels fabricated of galvanealed steel. The fan and filter bottom access panel shall be attached with quarter turn quick open fasteners to allow for easy removal and access for service.
  - 4. Unit mounting shall be by hanger brackets provided at four locations. Hanger brackets shall include rubber grommet isolators with brass eyelets for threaded rod.
- C. Painted Finish:
  - 1. All painted cabinet exterior panels shall be finished with a heat cured anodic acrylic powder paint of the standard factory color. If fan coil is concealed in ceiling plenum, then finish is only required on ceiling access panel. Color shall be Enviro-Tec Pearl White.

D. Sound:

1. Units shall have published sound power level data tested in accordance with ARI Standard 350-2000 (non-ducted equipment) and ARI Standard 260-2001 (ducted equipment).

E. Fan Assembly:

1. Unit fan shall be a dynamically balanced, forwardly curved, DWDI centrifugal type constructed of 18 gauge zinc coated galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, permanent split-capacitor type with UL and CSA listed automatic reset thermal overload protection and three separate horsepower taps. Single speed motors are not acceptable.
2. The fan assembly shall be easily removable for servicing the motor and blower at, or away from the unit. The entire fan assembly shall be able to come out of the unit by removing two screws and unplugging the motor. Plenum unit fan assemblies shall be easily serviced through an access panel provided.
3. Devices used to energize and de-energize (switch) fan speeds must be totally silent. Magnetic, mercury, and/or quiet relays and/or contactors are not acceptable.

F. Coils:

1. All cooling and heating coils shall optimize rows and fins per inch to meet the specified capacity. Coils shall have seamless copper tubes and shall be mechanically expanded to provide an efficient, permanent bond between the tube and fin. Copper tube wall shall be 0.025. Fins shall have high efficiency aluminum surface optimized for heat transfer, air pressure drop and carryover.
2. All coils shall be hydrostatically tested at 450 PSIG air pressure under water, and rated for a maximum of 300 PSIG working pressure at 200°F.
3. Cooling Coil casing shall be fabricated from 304 Stainless Steel.
4. All coils shall be provided with a manual air vent fitting to allow for coil venting.
5. Cooling and heating coils shall be in separate coil casings and have a minimum 2" gap between them and 1-1/2" of clearance on the entering and leaving air sides to allow access from bottom of unit for cleaning

when the drain pan is removed. Common tube sheets and coil casing are not acceptable. Water coils on concealed models shall be field reversible for right, left or opposite side connections.

6. Heating coils shall be furnished in the reheat position.

G. Drain Pans:

1. Provide a single wall primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance. Drain pans shall be of one-piece construction and be positively sloped for condensate removal. Drain pans on concealed models shall be field reversible for right or left hand connections.
2. The drain pan shall be externally insulated with a fire retardant, closed cell foam insulation. The insulation shall carry no more than a 25/50 Flame Spread and Smoke Developed Rating per ASTM E-84 and UL 723 and an Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.
3. Drain pan shall be provided with factory mounted overflow switch
4. Provide an auxiliary drip tray under valve package per detail on plans. Auxiliary drip pan shall be constructed of stainless steel.

H. Filters:

1. All plenum and exposed units shall be furnished with a minimum 1" pleated filter (MERV 8). Filters shall be tight fitting to prevent air bypass. Plenum unit filters shall be easily removable from the bottom of the unit without the need for tools.

I. Electrical:

1. Units shall be furnished with single point power connection. Provide an electrical junction box with terminal strip for motor and other electrical terminations. The factory mounted terminal wiring strip shall be an integral part of the ETI BC-06 Control board with integral control transformer and 3-speed relays. Provide toggle disconnect switch.
2. Provide a hinged electrical enclosure in the bottom of the unit for easy access to all electrical components, terminal blocks, BC06 control board and wiring. DDC Controller shall also be factory installed in this enclosure.

J. Piping Packages:

1. Provide factory piping package components for all fan coil units. Piping packages shall consist of following:
2. Chilled Water Supply: strainer with blowdown valve, P/T's, shutoff valve, union connection
3. Chilled Water Return: union connection, PIC control valve (provided by JCI), P/T's, shutoff valve
4. Hot Water Supply: strainer with blowdown valve, P/T's, shutoff valve, union connection
5. Hot Water Return: union connection, control valve (provided by JCI), flow control/shutoff valve, P/T's

K. Components shall be provided to contractor for field installation. Components shall be installed so that the chilled water packages sit over auxiliary drip pan. Contractor shall install additional supports/ wire hangers as necessary to support piping packages from structure. Coil connections shall not support entire weight of piping packages.

L. Controls Package:

1. FCU Manufacturer to provide, install and wire any and all controls required to accomplish the FCU sequence of operation specified per the following table:

Control Device	Supplied By	Installed By	Wired By
DDC Controller	Controls Contractor	FCU Manufacturer	FCU Manufacturer
Space Sensor	Controls Contractor	Controls Contractor	Controls Contractor
FCU Speed Switch	Controls Contractor	Controls Contractor	Controls Contractor
Control Valves	Controls Contractor	Mechanical Contractor	Controls Contractor
Discharge Air Sensor	Controls Contractor	Controls Contractor	Controls Contractor
Control Transformer	FCU Manufacturer	FCU Manufacturer	FCU Manufacturer
Fan Speed Relay Control	FCU Manufacturer	FCU Manufacturer	FCU Manufacturer

Drain Pan Float Switch	FCU Manufacturer	FCU Manufacturer	FCU Manufacturer
Controller Enclosure	FCU Manufacturer	FCU Manufacturer	Not Applicable

Notes:

- 1) Installation shall include mounting, wiring and terminations.
- 2) FCU shall be made completely ready for field termination of space sensor, speed switch and control valves and discharge air sensor
- 3) Control devices specified to be provided by controls contractor but installed by manufacturer shall shipped direct to manufacturer for factory installation
- 4) FCU controller shall be field programmed by controls contractor.
- 5) Manufacturer to wire DDC controller per wiring diagram provided by controls contractor.

### PART 3 - EXECUTION

#### 3.1 DUCTWORK, GENERAL:

- A. Drawings show general arrangement of duct. Provide all ductwork required to complete installation and avoid interferences. Installation shall conform with applicable portions of Section 230010, General Provisions, HVAC. Fabricate ducts as job progresses, using actual job measurements and referring to architectural, structural, electrical, plumbing and equipment drawings in order to avoid conflicts. Where space limitations preclude use of ducts and fittings as shown, consult Engineer for instructions. All ductwork, offsets, fittings, etc. required to make a complete and efficiently operating installation are included in this contract and shall be fabricated and installed in accordance with SMACNA Standards for the application unless noted otherwise herein.
- B. All duct dimensions shown on drawings are "inside clear". The sizes of acoustically lined ducts and dampers in ducts shall be increased accordingly. Ducts shall be smooth on inside.
- C. Provide flexible duct connectors at all ductwork connections to equipment with fans, motors or rotating components.
- D. Install double thickness turning vanes in duct fittings having centerline radius less than 1-1/2 times width of duct.
- E. Support ducts from building structure with 1 inch wide galvanized steel bands per SMACNA recommendations. Wire hangers and nylon straps will not be acceptable.

- F. Do not install runout drops to ceiling diffusers until ceiling grids have been installed. Center ceiling diffusers between grids.
- G. Seal all joints in supply, return and exhaust ducts with Childers CP-145 Veloseal, or McGill Airseal, DuroDyne or equal water based synthetic duct sealant, or equal.
- H. Upon complete installation of ducts, clean entire system of rubbish, plaster, dirt, etc. before installing any outlets. After installation of outlets and connections to fans are made, blow out entire system with all control devices wide open.

### 3.2 FIRE DAMPERS:

- A. Fire dampers shall be securely anchored to floor or wall, and installed by bolting retaining angles to the sleeve on each side of the wall. Wall and floor penetrations shall be fire sealed with an approved UL listed firestop system as manufactured by 3M, Hilti, Metacaulk or equal for the wall or floor type penetrated. A suitable access door shall be provided for each fire damper. In accordance with the requirements of the International Building Code, contractor shall permanently mark any access doors or other openings that serve as a means of access to fire dampers with ½" letters reading "Fire Damper". Label shall be permanently and securely attached.

### 3.3 PIPING, GENERAL:

- A. All piping shall conform with Section 230010 - General Provisions - HVAC.
- B. Provide a flange or union in screwed or welded pipe where pipe connects to equipment. At control valves, install union in each pipe connecting to the device. Screwed unions shall not be installed where they will be subjected to bending stresses, as in expansion loops or offsets.
- C. Provide flexible pipe connectors at all piping connections to pumps.
- D. Run pipes parallel to walls and ceilings. Wherever pipes change size, use eccentric fittings. Run piping so as not to obstruct walking or service areas.
- E. Pipe and equipment locations shown are approximate. Exact location of equipment, pipes, and chases to be as approved and determined in field to avoid other pipes and maintain structural clearances. Use actual job dimensions and equipment shop drawings for roughing.
- F. Piping to comply with best trade practice. Provide clearance between pipe and building structure so pipes can expand without damage to building structure.

- G. Install manual air vents at all high points in piping system and 1/2" drain valves at all low points in piping system.
- H. Pipe water relief drains, blowdown, and other drains to, but not into, the most convenient floor drain or where otherwise directed.

### 3.4 EQUIPMENT, GENERAL:

- A. All equipment specified herein shall be installed in accordance with manufacturer's published installation instructions and these specifications. All items shall have adequate clearances for access and maintenance. Each item of equipment shall be performance tested to verify compliance with specifications. Certified data sheets of successful performance tests shall be included in operating manuals.

### 3.5 AUTOMATIC TEMPERATURE CONTROL:

- A. General: Provide a complete system of temperature controls as described herein. The system shall be installed complete by competent mechanics in the employment of the control manufacturer. All controls shall be by Johnson Controls. Controls cost shall be included in this contractor's bid. Contact Gill Holland with Johnson Controls for pricing (803) 237-8880.
- B. Wiring for low voltage circuits (24 volts or less) may be No. 16 up to 50 feet, and above 50 feet shall be of size to limit voltage drop to 5 percent. Interlock wiring shall be as recommended by equipment manufacturer.
- C. Provide fan coil controllers and control valves as required for new fan coil units.
- D. Controls shall be stand alone and will not be connected to the central Metasys system at this time. Controls shall have the capability to be connected to the central Metasys system in the future with no additional components required.
- E. Sequence of Operation: New FCs [Fan Coil Units]
  - 1. General:
    - a) Fan coil units will be controlled by a standalone DDC controller with wall mounted room temperature sensor/command module.
    - b) Command module shall be provided with fan speed override button that will provide local unit start/stop and fan speed adjustment from low speed, to medium speed to high speed. Command module shall also be provided with set point adjustment and digital display for local readout of room temperature, room temperature set point and fan command status (i.e. on/off, low speed/medium speed/high speed).

- c) Provide supply air discharge temperature sensor for monitoring only.
- 2. Start Stop:
  - a) Each FCU will run continuously but will have the ability to be started and stopped by the FMS system or the local fan speed switch.
- 3. Safeties:
  - a) Each FCU will be provided with a drain pan float switch. Float switch will be wired to alarm at the CCMS and to shut off fan and close valves whenever excess water is detected in drain pan.
- 4. Temperature Control:
  - a) Room temperature, as sensed by wall mounted room temperature sensor, will be controlled by modulating the fan coil unit CHW and HW control valves as required to maintain return air temperature set point.

### 3.6 SUBMITTALS:

- A. Provide submittals as required in Section 230010. At completion of work, submit check-out report of automatic control system. Submit start up reports per Section 230010. Submit test and balance report per 230010. Submit manufacturer's installation, operation, and maintenance instructions.

End of Section 230500

## SECTION 230700 – HVAC INSULATION

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED:

- A. General Requirements: This section shall include all insulation as required for installation on all items as specified hereinafter and/or as indicated. All insulations shall be installed in a workmanlike manner by qualified workers in the employment of an independent insulation contractor. Costs of insulation shall be included as part of work by contractor as applicable to his section of work. No separate bid is to be included for insulation work.
- B. Fire hazard classification for all material shall not exceed flame spread of 25 and smoke development of 50 as classified by Underwriters Laboratories under Test Method ASTM E-84 and acceptable under NFPA Standards. This is to apply to the complete system and be a composite rating of insulation material with jacket or facings, vapor barrier, joint sealing tapes, mastic and fittings.
- C. Prior to commencing any work, submit data sheets for engineer's approval of all material proposed to be used on this project.

### PART 2 - PRODUCTS

#### 2.1 ABOVE GROUND INDOOR PIPING:

- A. Pipe Insulation:
  - 1. All water piping shall be insulated with heavy density fiberglass with all-service jacket equal to Owens-Corning Double Self-Sealing Lap, ASJ/SSL-II, one piece, to be used on all lines above and below ambient temperature from 0°F to 850°F.

#### 2.2 PIPE INSULATION THICKNESS:

- A. Piping for the following systems shall be insulated to the thickness listed:

<u>Item</u>	<u>Insulation Thickness (Inches)</u>
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Fiberglass K = 0.24

Cold Pipes:

Chilled Water (Supply & Return)

Pipe up to 1-1/2" 1-1/2"

Pipe 2" and above 2"

Condensate Drain Piping 1"

Hot Pipes:

Hot Water (Heating Supply & Return)

Pipe up to 1-1/2" 1-1/2"

Pipe 2" and above 2"

2.3 DUCTWORK INSULATION:

A. Supply And Return Ducts 5 Feet From Air Handling Equipment:

1. Line all metal ducts with 1-1/2 pound density, 1 inch thick duct liner equal to Owens Corning Aeroflex PLUS. Liner shall meet requirements of ASTM C1338, G21 and G22 with respect to resistance to microbial growth.

B. Return Transfer Ducts and Sound Elbows on Grilles:

1. Line all metal ducts with 1-1/2 pound density, 1/2" inch thick duct liner equal to Owens Corning Aeroflex PLUS. Liner shall meet requirements of ASTM C1338, G21 and G22 with respect to resistance to microbial growth.

C. Supply, Return, and Fresh Air Return Ducts in Plenums:

1. Insulate all, including lined metal ducts, with 2" thick, 3/4 pound density duct wrap with FRK vapor barrier equal to Owens Corning Fiberglas All Service Duct Wrap.

PART 3 - EXECUTION

3.1 PIPE INSULATION:

- A. All insulation shall be applied to clean, dry surfaces butting all sections firmly together and finishing as specified hereinafter.

- B. All vapor barriers shall be sealed, and shall be continuous throughout. No staples shall be used on any vapor barrier jacket unless sealed with vapor barrier coating or vapor barrier tape.
- C. Insulation of all insulated lines shall be interpreted as including all pipe, valves, fittings and specialties comprising the lines, except flanged unions and screwed unions on hot piping.
- D. Valves and unions on chilled water piping shall have oversized insulation applied and sealed with CP-30 LO or CP-35 or equal.
- E. Where sectional insulation is not practical, the proper insulation cement or block insulation shall be utilized by forming it to the applied surface.
- F. Pipe Insulation Protection: Direct contact between pipe and hangers shall be avoided. Hanger shall pass outside of a sheet metal protection saddle which shall cover a section of high density insulation (cellular glass or calcium silicate), of sufficient length to support the weight of the pipe without crushing the insulation. The vapor barrier shall be continuous behind the saddle or shall be lapped over the saddle and securely cemented thereto.
- G. Flow measurement: Provide a removable section of insulation for each pump at location designated by the engineer. Removable section shall be approximately 18 inches long and shall consist of two (2) 1/2" layers of Armaflex, or equal, with staggered joints. Insulation shall be held in place by three (3) Velco straps and be fully removable and replaceable without disturbing adjacent pipe insulation. All joints shall retain vapor seal integrity.
- H. All pipe covering shall be furnished with self-seal lap and 3" wide butt joint strips. The release paper is pulled from adhesive edge, pipe covering closed tightly around pipe and self-seal lap rubbed hard in place with the blunt edge of an insulation knife. This procedure applied to longitudinal as well as circumferential joints. Staple all longitudinal and circumferential joints with 9/16" staples 6" on center and seal over all staples with Childers CP-30 or equal vapor barrier coating. Care shall be taken to keep jacket clean as it is the finish on all exposed work. All adjoining insulation sections shall be firmly butted together before butt joint strip is applied, and all chilled water and cold water service lines shall have vapor barrier coating thoroughly coated to pipe at butt joints and at all fittings. All fittings, valve bodies, unions, and flanges shall be finished as follows:
- I. To the hot insulated fittings, apply a tack coat of Childers CP-10 or CP-11 (use CP-35 on cold piping) or equal at the rate of 2 gallons per 100 S.F. While the tack coat is still wet, a layer of 10 x 10 fiberglass reinforcing mesh shall be embedded with all fabric seams overlapped a minimum of 2". A finish coat, at a

coverage rate of 4 gallons per 100 S.F. shall be applied, fully covering the reinforcing mesh.

- J. Apply fiberglass inserts to all other hot fittings and cold water fittings in conjunction with Proto PVC Fitting Covers. Seal cold applications as recommended by the manufacturer.

### 3.2 DUCTWORK INSULATION:

#### A. Flexible Insulation (External):

- 1. Application: Insulation shall be wrapped tightly on the ductwork with all circumferential joints butted and longitudinal joints overlapped to the bottom of the rectangular duct. On ductwork over 24 inches wide, secure insulation with suitable resistance welded mechanical fasteners at not more than 18 inches on center. The 2-inch flange on the facing shall be stapled with 9/16 inch flare door stainless steel staples on 6 inch centers. Apply a three inch wide bank of Childers CP-30 LO or CP-35 or equal Vapor Barrier Coating on all joints of insulation. While tack coat is still wet, embed 3-inch wide White 10 x 10 Fiberglass reinforcing mesh and recoat fully covering the mesh. Spot all pin penetrations or punctures in the insulation with a full coat of CP-30 LO or CP-35 or equal.

#### B. Flexible Insulation (Internal):

- 1. Applications: Duct Liner shall be applied to the interior of metal ducts using Childers CP-121 HV Duct Liner Adhesive or an equal product having a flame spread of less than 25 and a smoke development of less than 50 and classified such by Underwriters Laboratories. Exposed edges of insulation shall be coated with a heavy layer of Childers CP-135 CHIL-SPRED or equal to eliminate erosion of fibers.
- 2. When duct height or plenum walls exceed 24 inches and when duct widths exceed 12 inches, resistance welded mechanical fasteners will be used in addition to duct liner adhesive. Fasteners shall start within 3 inches of the upstream transverse edges of the liner and 3 inches from the longitudinal joints. Fasteners should be spaced a maximum of 6 inches on center around the perimeter of the duct, except that they may be a maximum of 6 inches from a corner break. Elsewhere they shall be a maximum of 18 inches on center.
- 3. Insulation shall extend the full length of each duct section to permit butting firmly at the duct joints. All joints shall be tightly sealed with CP-135 or equal.

### 3.3 EQUIPMENT INSULATIONS:

#### A. Fan Coil Drain Pans:

1. Insulate underside and sides of main drain pans with all edges sealed with CP-30 or equal. Insulation shall be applied to a dry drain pan with Armstrong adhesive or equal.

End of Section 230700

## SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. Provide all labor, materials, equipment and supervision to construct complete and operable electrical systems as indicated on the drawings and specified herein.
- B. All materials and equipment used shall be new, undamaged and free from any defects.

#### 1.2 RELATED DOCUMENTS AND OTHER INFORMATION

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the portions of work specified in each and every Section, individually and collectively.

#### 1.3 PRODUCT WARRANTIES

- A. Provide manufacturer's standard printed commitment in reference to a specific product and normal application, stating that certain acts of restitution will be performed for the Purchaser or Owner by the manufacturer, when and if the product fails within certain operational conditions and time limits. Where the warranty requirements of a specific specification section exceeds the manufacturer's standard warranty, the more stringent requirements will apply and modified manufacturer's warranty shall be provided. In no case shall the manufacturer's warranty be less than one (1) year.

#### 1.4 PRODUCT SUBSTITUTIONS

- A. General: Materials specified by manufacturer's name shall be used unless prior approval of an alternate is given by addenda. Requests for substitutions must be received in the office of the Architect at least 10 days prior to opening of bids.

#### 1.5 ELECTRICAL DRAWINGS

- A. Electrical contract drawings are diagrammatic and indicate the general arrangement of electrical equipment. Do not scale electrical plans. Obtain all dimensions from the Architect's dimensioned drawings and field measurements. The Contractor shall review Architectural plans for door swings and built-in equipment; conditions indicated on those plans shall govern for this work.
- B. Coordinate installation of electrical equipment with the structural and mechanical equipment and access thereto. Coordinate exterior electrical work with civil and landscaping work.
- C. Discrepancies shown on different drawings, between drawings and specifications or between documents and field conditions shall be installed to provide the better quality or greater quantity of work; or, comply with the more stringent requirement; either or both in accordance with the A/E's interpretation.

## 1.6 SYSTEMS REQUIRING ROUGH-IN

- A. Rough-in shall consist of all outlet boxes/raceway systems/supports and sleeves required for the installation of cables/devices by other Divisions and by the Owner. It shall be the responsibility of this Contractor to determine the requirements by reviewing the contract documents and meeting with the Superintendent of the trade involved and Owner's representative to review submittal data, shop drawings, etc.
- B. Sealing of all sleeves, to meet the fire rating of the assembly, whether active or not, is work of this Division.

## 1.7 EXISTING SERVICES AND FACILITIES

- A. Damage to Existing Services: Existing services and facilities damaged by the Contractor through negligence or through use of faulty materials or workmanship shall be promptly repaired, replaced, or otherwise restored to previous conditions by the Contractor without additional cost to the Owner.
- B. Interruption of Services: Interruptions of services necessary for connection to or modification of existing systems or facilities shall occur only at prearranged times approved by the Owner. Interruptions shall only occur after the provision of all temporary work and the availability of adequate labor and materials will assure that the duration of the interruption will not exceed the time agreed upon.
- C. Removed Materials: Existing materials made unnecessary by the new installation shall be stored on site. They shall remain the property of the Owner and shall be stored at a location and in a manner as directed by the Owner. If classified by the Owner's authorized representative as unsuitable for further use, the material shall become the property of the Contractor and shall be removed from the site at no additional cost to the owner.

## PART 2 - PRODUCTS

### 2.1 FIRESTOPPING:

- A. Refer to section 078413 for additional requirements.
- B. A firestop system shall be used to seal penetrations of electrical conduits and cables through fire-rated partitions per NEC 300.21, and NEC 800.26. The firestop system shall be qualified by formal performance testing in accordance with ASTM E-814, or UL 1479.
- C. The firestop system shall consist of a fire-rated caulk type substance and a high temperature fiber insulation. It shall be permanently flexible, waterproof, non-toxic, smoke and gas tight and have a high adhesion to all solids so damming is not required. Only metal conduit shall be used in conjunction with this system to penetrate fire rated partitions. Install in strict compliance with manufacturer's recommendations. 3M or approved equal.

## PART 3 - EXECUTION

### 3.1 PRODUCT INSTALLATION, GENERAL

- A. Except where more stringent requirements are indicated, comply with the product manufacturer's installation instructions and recommendations, including handling, anchorage, assembly, connections, cleaning and testing, charging, lubrication, startup, test operation and shut-down of operating equipment. Consult with manufacturer's technical experts, for specific instructions on unique product conditions and unforeseen problems.
- B. Protection and Identification: Deliver products to project properly identified with names, models numbers, types, grades, compliance labels and similar information needed for distinct identifications; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the manufacturer specifically for exterior storage.
- C. Permits and Tests: Provide labor, material and equipment to perform all tests required by the governing agencies and submit a record of all tests to the Owner or his representative. Notify the Architect five days in advance of any testing.
- D. Install temporary protective covers over equipment enclosures, outlet boxes and similar items after interiors, conductors, devices, etc. are installed, to prevent the entry of construction debris and to protect the installation during finish work performed by others. Do not install device plates, equipment covers or trims until finish work is complete.
- E. Clean all equipment, inside and out, upon completion of the work. Scratched or marred surfaces shall be touched-up with touch-up paint furnished by the equipment manufacturer.
- F. Replace all equipment and materials that become damaged.
- G. No more than three phase conductors, each of opposite phases for a three phase WYE system, shall be combined in a single raceway unless written approval is granted by the engineer or noted otherwise on the construction documents. 120 volt and 277 volt receptacle and lighting circuits are except from this requirement, but must meet the requirements of the NEC.
- H. Shared neutrals shall not be utilized (including, but not limited to homeruns) unless written permission is obtained from the Engineer for a specific application.

### 3.2 EQUIPMENT PROTECTION

- A. Equipment and materials shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.
- B. Store equipment indoors in clean dry space with uniform temperature to prevent condensation. Equipment shall include but not be limited to panelboards, enclosures, controllers, circuit protective devices, cables, wire, light fixtures, electronic equipment, and accessories.
- C. During installation, equipment shall be protected against entry of foreign matter; and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.

- D. Damaged equipment shall be, as determined by the Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.
- E. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
- F. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

### 3.3 ELECTRICAL WORK:

- A. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:
  - 1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
  - 2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.
  - 3. Before initiating any work, a job specific work plan must be developed by the contractor with a peer review conducted and documented by the Contractor. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used and exit pathways.
  - 4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Owner/ Architect.

END OF SECTION

## SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes building wire and cable; metal clad cable; and wiring connectors and connections.
- B. Related Sections:
  - 1. Section 26 05 53 - Identification for Electrical Systems: Product requirements for wire identification.

#### 1.2 REFERENCES

- A. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
  - 2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
- C. Underwriters Laboratories, Inc.:
  - 1. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.

#### 1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
  - 1. Solid conductor for branch circuits 10 AWG and smaller.
  - 2. Stranded conductors for control circuits.
  - 3. Conductor not smaller than 12 AWG for power and lighting circuits.
  - 4. Conductor not smaller than 14 AWG for control circuits.
  - 5. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.
- B. Wiring Methods: Provide the following wiring methods:
  - 1. Use only building wire, Type THHN/THWN insulation, in raceway unless specifically noted otherwise.
  - 2. Type MC Cable shall **not** be allowed without written permission from engineer.

#### 1.4 QUALITY ASSURANCE

- A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5 m) when tested in accordance with NFPA 262.

- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Conform to requirements of NFPA 70.

## 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

## 1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to work. Coordinate dimensions with architectural, structural, and civil drawings. Electrical Drawings are diagrammatic only and shall not be scaled.

## 1.7 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.
- C. Wire and cable routing indicated is approximate unless dimensioned. Include wire and cable lengths within 10 ft of length shown.

# PART 2 PRODUCTS

## 2.1 BUILDING WIRE

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Southwire
  - 2. AETNA.
  - 3. American Insulated Wire Corp.
  - 4. Colonial Wire
  - 5. General Cable Co.
  - 6. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Single conductor insulated wire.
- C. Conductor: Copper.
- D. Insulation Voltage Rating: 600 volts.

## 2.2 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify interior of building has been protected from weather.
- C. Verify mechanical work likely to damage wire and cable has been completed.
- D. Verify raceway installation is complete and supported.

### 3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

### 3.3 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods compatible with existing electrical installations, or as specified.
- E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

### 3.4 INSTALLATION

- A. Route wire and cable to meet Project conditions.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.

- C. Identify wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:
  - 1. Pull conductors into raceway at same time.
  - 2. Install building wire 4 AWG and larger with pulling equipment.
- E. Special Techniques - Wiring Connections:
  - 1. Clean conductor surfaces before installing lugs and connectors.
  - 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
  - 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
  - 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
  - 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
  - 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
  - 7. Polaris type splice kits will not be accepted.
- F. Install stranded conductors for branch circuits 10 AWG and smaller. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- G. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.
- H. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- I. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

### 3.5 WIRE COLOR

- A. General:
  - 1. For wire sizes 10 AWG and smaller, install wire with insulation colors as designated below.
  - 2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:

120/208-volt systems:	Phase A - Black
	Phase B - Red
	Phase C - Blue
	Neutral - White

277/480-volt systems:	Phase A - Orange
-----------------------	------------------

Phase B - Brown  
Phase C - Yellow  
Neutral - Gray

- B. Ground Conductors:
  - 1. For 6 AWG and smaller: Green.
  - 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

### 3.6 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

END OF SECTION

## SECTION 26 05 26 -GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Wire.
  - 2. Mechanical connectors.

#### 1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
  - 2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- B. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.

#### 1.3 QUALITY ASSURANCE

- A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.

#### 1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- D. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

## PART 2 PRODUCTS

### 2.1 WIRE

- A. Material: Stranded copper.
- B. Bonding Conductor: Copper conductor insulated.

### 2.2 MECHANICAL CONNECTORS

- A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

### 3.2 PREPARATION

- A. Remove paint, rust, mill oils, and other surface contaminants at connection points.

### 3.3 EXISTING WORK

- A. Extend existing grounding system using materials and methods compatible with existing electrical installations, or as specified.

### 3.4 INSTALLATION

- A. Install in accordance with IEEE 142.
- B. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- C. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.
- D. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding bus.

- E. Grounding electrical system using continuous metal raceway system enclosing circuit conductors in accordance with NEC.
- F. Permanently attach equipment and grounding conductors prior to energizing equipment.

### 3.5 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform continuity testing in accordance with IEEE 142.
- D. When improper grounding is found on receptacles, check receptacles in entire project and correct. Perform retest.

END OF SECTION

## SECTION 26 05 29 -HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Conduit supports.
  - 2. Formed steel channel.
  - 3. Spring steel clips.
  - 4. Sleeves.
  - 5. Equipment bases and supports.

#### 1.2 REFERENCES

- A. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.

#### 1.3 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

### PART 2 PRODUCTS

#### 2.1 CONDUIT SUPPORTS

- A. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.
- B. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- C. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

- D. Conduit clamps - general purpose: One hole malleable iron for surface mounted conduits.
- E. Cable Ties: High strength nylon temperature rated to 185 degrees F (85 degrees C). Self locking.

## 2.2 FORMED STEEL CHANNEL

- A. Product Description: Galvanized 12 gage (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

## 2.3 SPRING STEEL CLIPS

- A. Product Description: Mounting hole and screw closure.

## 2.4 SLEEVES

- A. Sleeves through Non-fire Rated Floors: 18 gage (1.2 mm) thick galvanized steel.
- B. Sleeves through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage (1.2 mm) thick galvanized steel.
- C. Sleeves through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

# PART 3 EXECUTION

## 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify openings are ready to receive sleeves.
- C. Verify openings are ready to receive firestopping.

## 3.2 PREPARATION

- A. Powder-actuated anchors shall not be used.
- B. Obtain permission from Architect before drilling or cutting structural members.

## 3.3 INSTALLATION - HANGERS AND SUPPORTS

- A. Anchors and Fasteners:
  - 1. Concrete Structural Elements: Provide expansion anchors.
  - 2. Steel Structural Elements: Provide beam clamps, spring steel clips, and steel ramset fasteners.
  - 3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.

4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts and hollow wall fasteners.
  5. Solid Masonry Walls: Provide expansion anchors.
  6. Sheet Metal: Provide sheet metal screws.
  7. Wood Elements: Provide wood screws.
- B. Install conduit and raceway support and spacing in accordance with NEC.
- C. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- D. Install multiple conduit runs on common hangers.
- E. Supports:
1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
  2. Install surface mounted cabinets and panelboards with minimum of four anchors.
  3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch (25 mm) off wall.

### 3.4 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with adjustable interlocking rubber links.
- B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.
- C. Set sleeves in position in forms. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- E. Extend sleeves through floors 1 inch (25 mm) above finished floor level. Caulk sleeves.
- F. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent work with stuffing insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.
- G. Install plastic escutcheons at finished surfaces.

### 3.5 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

END OF SECTION

## SECTION 26 05 33

### RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes conduit and tubing, surface raceways, wireways, outlet boxes, pull and junction boxes, and handholes.
- B. Related Sections:
  - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
  - 2. Section 26 05 29 - Hangers and Supports for Electrical Systems.
  - 3. Section 26 05 36 - Cable Trays for Electrical Systems.
  - 4. Section 26 05 53 - Identification for Electrical Systems.
  - 5. Section 26 27 16 - Electrical Cabinets and Enclosures.
  - 6. Section 26 27 26 - Wiring Devices.

##### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
  - 2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
  - 3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).
- B. National Electrical Manufacturers Association:
  - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
  - 2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
  - 3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

##### 1.3 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. Interior Wet and Damp Locations: Provide galvanized rigid steel or aluminum conduit. Provide cast metal outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.
- C. Concealed Dry Locations: Provide electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

- D. Exposed Dry Locations in unfinished spaces: Provide rigid steel or intermediate metal conduit where subject to damage (see below for defined locations that are subject to damage), electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.
  - 1. Spaces defined as subject to physical damage are as follows:
    - a. Mechanical Rooms below 10' above finished floor.
    - b. Loading Docks.
    - c. Any area with forklift traffic.
- E. Exposed Dry Locations in finished spaces (existing conditions only): Provide wiremold (or panduit, or prior approved equal) surface metal raceway. Provide surface metal boxes by same company as raceway. For Communications System, provide deep surface metal boxes.

#### 1.4 DESIGN REQUIREMENTS

- A. Minimum Raceway Size: 3/4 inch (19 mm) unless otherwise specified.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents:
  - 1. Record actual routing of conduits larger than 2 inch (DN50).
  - 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

#### 1.7 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate installation of outlet boxes for equipment connected under Section 26 05 03.
- C. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers listed below are basis of design, or can provide products equal to basis of design.

1. Carlon Electrical Products.
2. Hubbell Wiring Devices.
3. Thomas & Betts Corp.
4. Walker Systems Inc.
5. The Wiremold Co.
6. Panduit.
7. Substitutions: Section 01 60 00 - Product Requirements.

## 2.2 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Intermediate Metal Conduit (IMC): Rigid steel.
- D. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

## 2.3 FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction.
- B. Fittings: NEMA FB 1.

## 2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction with PVC jacket.
- B. Fittings: NEMA FB 1.

## 2.5 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel compression type.
- C. All EMT conduit shall be Anodized with the following color coating:
  1. HVAC Equipment Power: Green
  2. Normal Power: Silver
  3. Fire Alarm System: Red
  4. Communications Systems: Black

## 2.6 SURFACE METAL RACEWAY

- A. Product Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.
- B. Fittings, Boxes, and Extension Rings: Furnish manufacturer's standard accessories and as required to provide a complete system, finish to match raceway.

## 2.7 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
  - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch (13 mm) male fixture studs where required.
  - 2. Concrete Ceiling Boxes: Concrete type.
- B. Wall Plates for Finished Areas: As specified in Section 26 27 26.
- C. Wall Plates for Unfinished Areas: Furnish gasketed cover.

## 2.8 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- B. Hinged Enclosures: As specified in Section 26 27 16.
- C. Surface Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface mounted junction box:
  - 1. Material: Galvanized cast iron.
  - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

### 3.2 EXISTING WORK

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.

- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

### 3.3 INSTALLATION

- A. Ground and bond raceway and boxes in accordance with Section 26 05 26.
- B. Fasten raceway and box supports to structure and finishes in accordance with Section 26 05 29.
- C. Identify raceway and boxes in accordance with Section 26 05 53.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.

### 3.4 INSTALLATION - RACEWAY

- A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- B. Arrange raceway supports to prevent misalignment during wiring installation.
- C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- D. Group related raceway; support using conduit rack. Construct rack using steel channel specified in Section 26 05 29; provide space on each for 25 percent additional raceways.
- E. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- F. Do not attach raceway to ceiling support wires or other piping systems.
- G. Construct wireway supports from steel channel specified in Section 26 05 29.
- H. Route exposed raceway parallel and perpendicular to walls.
- I. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- J. Maintain clearance between raceway and piping for maintenance purposes.
- K. Maintain 12 inch (300 mm) clearance between raceway and surfaces with temperatures exceeding 104 degrees F (40 degrees C).
- L. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- M. Bring conduit to shoulder of fittings; fasten securely.
- N. Install no more than equivalent of three 90 degree bends between boxes for power systems. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.

- O. Install no more than equivalent of two 90 degree bends between boxes for communications systems. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.
- P. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- Q. Install fittings to accommodate expansion and deflection where raceway crosses seismic, control and expansion joints.
- R. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- S. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- T. Surface Raceway: Install flat-head screws, clips, and straps to fasten raceway channel to surfaces; mount plumb and level. Install insulating bushings and inserts at connections to outlets and corner fittings.
- U. Close ends and unused openings in wireways, junction boxes, and pull boxes.

### 3.5 INSTALLATION - BOXES

- A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings.
- B. Adjust box location up to 10 feet (3 m) prior to rough-in to accommodate intended purpose.
- C. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26.
- D. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- E. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches (150 mm) from ceiling access panel or from removable recessed luminaire.
- F. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- G. Do not install flush mounting box back-to-back in walls; install with minimum 6 inches (150 mm) separation. Install with minimum 24 inches (600 mm) separation in acoustic rated walls.
- H. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- I. Install stamped steel bridges to fasten flush mounting outlet box between studs.

- J. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- K. Install adjustable steel channel fasteners for hung ceiling outlet box.
- L. Do not fasten boxes to ceiling support wires or other piping systems.
- M. Support boxes independently of conduit.
- N. Install gang box where more than one device is mounted together. Do not use sectional box.
- O. Install gang box with plaster ring for single device outlets.

### 3.6 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with Section 07 84 00.
- B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installer.
- C. Locate outlet boxes to allow luminaires positioned as indicated on Drawings.
- D. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

### 3.7 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust flush-mounting outlets to make front flush with finished wall material.
- C. Install knockout closures in unused openings in boxes.

### 3.8 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Clean interior of boxes to remove dust, debris, and other material.
- C. Clean exposed surfaces and restore finish.

END OF SECTION

## SECTION 26 05 36 - CABLE TRAYS FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes cable tray.
- B. Related Sections:
  - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
  - 2. Section 26 05 29 - Hangers and Supports for Electrical Systems

#### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - 2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 3. ASTM A924/A924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- B. National Electrical Manufacturers Association:
  - 1. NEMA VE 1 - Metal Cable Tray Systems.
  - 2. NEMA VE 2 - Metal Cable Tray Installation Guidelines.

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate tray type, dimensions, support points, and finishes.
- C. Product Data: Submit fittings and accessories.
- D. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual routing of cable tray and locations of supports.

## 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. Cooper B-Line
  - 2. MP Husky
  - 3. Legrand / Cablofil
  - 4. MonoSystems
  - 5. Substitutions: Section 01 60 00 - Product Requirements.

### 2.2 WIRE BASKET CABLE TRAY

- A. Product Description: NEMA VE 1, Class 20C basket type tray.
- B. Material: Steel.

\*\*\*\*\*

Select finish required considering environmental conditions. Galvanizing is appropriate for steel tray only; less expensive mill finish may not be available for all sizes or from each manufacturer. Painting and PVC coating may be applied to steel and aluminum trays.

\*\*\*\*\*

- C. Finish: Galvanized to ASTM A123/A123M; minimum 1.2 oz/sq ft (355 g/sq m) coating thickness.
- D. Provide wire basket cable tray of types and sizes indicated on drawings with connector assemblies, clamp assemblies, connector plates, splice plates and splice bars.
- E. All straight section longitudinal wires shall be constructed with a continuous top wire safety edge. Safety edge must be kinked and T-welded on all tray sizes.
- F. Wire basket cable tray shall be made of high strength steel wires and formed into a standard 2 inch by 4 inch wire mesh pattern with intersecting wires welded together. All mesh sections must have at least one bottom longitudinal wire along entire length of straight section.
- G. All fittings shall be field formed from straight sections in accordance with manufacturer's instructions.

- H. Furnish manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps.
- I. Trapeze hangers or center support hangers shall be supported by 1/4" inch or 3/8" inch diameter rods.

## PART 3 EXECUTION

### 3.1 EXISTING WORK

- A. Remove exposed abandoned cable tray[, including abandoned cable tray above accessible ceiling finishes. Remove supports. Cut cable tray flush with walls and floors, and patch surfaces.
- B. Maintain access to existing cable tray and other installations remaining active and requiring access. Modify installation or provide access panel.
- C. Clean and repair existing cable tray to remain or to be reinstalled.

### 3.2 INSTALLATION

- A. Install metal cable tray in accordance with NEMA VE 2.
- B. Install fiberglass cable tray in accordance with NEMA FG 1.
- C. Support trays and fasten to structure and finishes in accordance with Section 26 05 29. Install supports at each connection point, at end of each run, and at other points to maintain spacing between supports of 15 ft maximum.
- D. Install expansion connectors where recommended by manufacturer.
- E. Install firestopping in accordance with Section 07 84 00 to sustain ratings when passing cable tray through fire-rated elements.
- F. Ground and bond metal cable tray in accordance with Section 26 05 26.
  - 1. Provide continuity between tray components.
  - 2. Use anti-oxidant compound to prepare aluminum contact surfaces before assembly.
  - 3. Make connections to tray using mechanical, compression or exothermic connectors.

END OF SECTION

## SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Nameplates.
  - 2. Lockout Devices.

#### 1.2 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept identification products on site in original containers. Inspect for damage.
- C. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- D. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

#### 1.3 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Install nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

### PART 2 PRODUCTS

#### 2.1 NAMEPLATES

- A. Product Description: Laminated three-layer plastic with engraved letters on contrasting background color.
- B. Letter Size:
  - 1. 1/8 inch (3 mm) high letters for identifying individual equipment and loads.
- C. Minimum nameplate thickness: 1/8 inch (3 mm).

#### 2.2 LOCKOUT DEVICES

- A. Lockout Hasps:

1. Reinforced nylon hasp with erasable label surface; size minimum 7-1/4 x 3 inches (184 x 75 mm).

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

### 3.2 EXISTING WORK

- A. Install identification on existing equipment to remain in accordance with this section.
- B. Install identification on unmarked existing equipment.
- C. Replace lost nameplates.

### 3.3 INSTALLATION

- A. Install identifying devices after completion of painting.
- B. Nameplate Installation:
  1. Install nameplate parallel to equipment lines.
  2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
  3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
  4. Secure nameplate to equipment front using screws, rivets, or adhesive.
  5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
  6. Install nameplates for the following:
    - a. Panelboards.

END OF SECTION

## SECTION 26 05 03 - EQUIPMENT WIRING CONNECTIONS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes electrical connections to equipment.
- B. Related Sections:
  - 1. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
  - 2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.
  - 3. Section 26 27 26 - Wiring Devices

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA WD 1 - General Requirements for Wiring Devices.
  - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

#### 1.3 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- C. Prior to ordering electrical gear, compare to electrical requirements listed on electrical drawings for each piece of equipment. Notify architect / engineer immediately of any changes.
- D. Determine connection locations and requirements.
- E. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- F. Sequence electrical connections to coordinate with start-up of equipment.

### PART 2 PRODUCTS

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify equipment is ready for electrical connection, for wiring, and to be energized.

### 3.2 EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.
- C. Extend existing equipment connections using materials and methods compatible with existing electrical installations, or as specified.

### 3.3 INSTALLATION

- A. Make electrical connections.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Install cord and cap for field-supplied attachment plug.
- E. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- F. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- G. Install terminal block jumpers to complete equipment wiring requirements.
- H. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

### 3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION

## SECTION 26 09 23 - LIGHTING CONTROL DEVICES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Switches.
  - 2. Occupancy sensors.
- B. Related Sections:
  - 1. Section 26 05 03 - Equipment Wiring Connections: Execution requirements for electric connections specified by this section.
  - 2. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
  - 3. Section 26 05 33 - Raceway and Boxes for Electrical Systems: Product requirements for raceway and boxes for placement by this section.
  - 4. Section 26 27 26 - Wiring Devices: Product requirements for wiring devices for placement by this section.

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.
  - 2. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contractors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
  - 3. NEMA ICS 4 - Industrial Control and Systems: Terminal Blocks.
  - 4. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
  - 5. NEMA ICS 6 - Industrial Control and Systems: Enclosures.
  - 6. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate dimensioned drawings of lighting control system components and accessories.
  - 1. Include typical wiring diagrams for each component.
- C. Product Data: Submit manufacturer's standard product data for each system component.
- D. Manufacturer's Installation Instructions: Submit for each system component.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

- B. Project Record Documents: Record the following information:
  - 1. Actual locations of components and record circuiting and switching arrangements.
  - 2. Wiring diagrams reflecting field installed conditions with identified and numbered, system components and devices.
- C. Operation and Maintenance Data:
  - 1. Submit replacement parts numbers.
  - 2. Submit manufacturer's published installation instructions and operating instructions.
  - 3. Recommended renewal parts list.

## 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept components on site in manufacturer's packaging. Inspect for damage.
- C. Protect components by storing in manufacturer's containers indoor protected from weather.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. Wattstopper
  - 2. Hubbell Controls
  - 3. Lutron
  - 4. Cooper Controls
  - 5. Acuity Brands
  - 6. Philips
  - 7. Substitutions: Section 01 60 00 - Product Requirements.

### 2.2 OCCUPANCY SENSOR

- A. Separate sensitivity and time delay adjustments with LED indication of sensed movement. User adjustable time-delay: 30 seconds to 20 minutes.
- B. Furnish with manual override.

- C. Operation: Silent.
- D. Sensors: As required to accurately provide 100% coverage of space.
- E. Corridor and Hallway Sensors:
  - 1. Capable of being wired in master-slave configuration to extend area of coverage.
- F. Sensors shall be set up in Vacancy Mode such that users have to manually turn lights on, but if sensor determines space is unoccupied, then it will automatically turn lights off. This can be achieved via low-voltage manual switch tied to lighting controls, or through wiring scheme at contractors option.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Mount switches and occupancy sensors as indicated on Drawings to provide 100% coverage of space.
- B. Install wiring in accordance with Section 26 05 19.
- C. Use only properly color coded, stranded wire. Install wire sizes as indicated on Drawings. Install wire in conduit in accordance with Section 26 05 33.

### 3.2 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for starting and adjusting.
- B. Test each system component after installation to verify proper operation.

### 3.3 DEMONSTRATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for demonstration and training.
- B. Demonstrate operation of the following system components:
  - 1. Operation of switches.
  - 2. Operation of each type of occupancy sensors.

END OF SECTION

## SECTION 26 24 16 - PANELBOARDS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes distribution and branch circuit panelboards, electronic grade branch circuit panelboards.
- B. Related Sections:
  - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
  - 2. Section 26 05 53 - Identification for Electrical Systems.

#### 1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
- B. National Electrical Manufacturers Association:
  - 1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
  - 2. NEMA PB 1 - Panelboards.
  - 3. NEMA PB 1.1 - General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.
- C. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- D. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
- E. Underwriters Laboratories Inc.:
  - 1. UL 67 - Safety for Panelboards.

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Include all of the following information:
  - 1. Indicate outline and support point dimensions.
  - 2. Product data
  - 3. Enclosure type
  - 4. Circuit directory
  - 5. Bussing Diagrams
  - 6. Integrated short circuit ampere rating
  - 7. Device Nameplate Data

- C. Product Data: Submit catalog data showing specified features of standard products.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of panelboards and record actual circuiting arrangements.
- C. Operation and Maintenance Data: Submit spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

#### 1.6 MAINTENANCE MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance products.
- B. Furnish two of each panelboard key. Panelboards keyed alike to Owner's current keying system.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. GE Electric
  - 2. Square D
  - 3. Eaton
  - 4. Substitutions: Section 01 60 00 - Product Requirements.

#### 2.2 BRANCH CIRCUIT PANELBOARDS

- A. Product Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.
- B. Panelboard Bus: Copper current carrying components, ratings as indicated on Drawings. Furnish copper ground and neutral bus in each panelboard.
- C. See circuit breaker section below for information on types of circuits required.
- D. Enclosure: NEMA PB 1

1. Indoor Locations - Type 1, unless noted otherwise below.
- E. Cabinet Box: 6 inches (153 mm) deep, 20 inches (508 mm) wide.
- F. Cabinet Front: Door-in-door type, fastened with concealed trim clamps, hinged door with flush lock all keyed alike, metal directory frame, finished in manufacturer's standard gray enamel.
- G. All panelboards shall be hinged "door in door" type with:
  1. Interior hinged door with hand operated latch or latches as required to provide access to circuit breaker operating handles only, not to energized parts.
  2. Outer hinged door shall be securely mounted to the panelboard box with factory bolts, screws, clips or other fasteners requiring a tool for entry, hand operated latches are not acceptable.
  3. Both inner and outer doors shall open left to right.
- H. All panelboards shall have bolt-on style breakers.
- I. Provisions for future breakers shall be fully bussed complete with all necessary mounting hardware.

## 2.3 CIRCUIT BREAKERS

- A. For all circuit breakers 200 amps and smaller: Provide Molded Case Thermal Magnetic Trip type Circuit Breakers.
  1. Type SWD for lighting circuits.
  2. Type HACR for all air conditioning equipment circuits.
  3. Class A ground fault interrupter circuit breakers where scheduled.
  4. Do not use tandem circuit breakers.
  5. GFCI Circuit breakers: Single and two-pole configurations with Class A ground-fault protection (6-mA trip).

## 2.4 SHORT CIRCUIT CURRENT RATING

- A. Devices which achieve the level of fault protection indicated by means of "series" or "integrated" rating shall be acceptable unless specifically indicated on the drawings. All panelboards shall be fully rated.
- B. For existing equipment, provide circuit breakers with short circuit current ratings that match ratings indicated on panel, if no markings indicate panelboard rating, then provide ratings that match highest rated circuit breaker in panelboard.

## PART 3 EXECUTION

### 3.1 EXISTING WORK

- A. Maintain access to existing panelboards remaining active and requiring access. Modify installation or provide access panel.

- B. Clean and repair existing panelboards to remain or to be reinstalled.

### 3.2 INSTALLATION

- A. Install panelboards in accordance with NEMA PB 1.1.
- B. Install panelboards plumb.
- C. Height: 6 feet (1800 mm) to top of panelboard; install panelboards taller than 6 feet (1800 mm) with bottom no more than 4 inches (100 mm) above floor.
- D. Install filler plates for unused spaces in panelboards.
- E. Ground and bond panelboard enclosure according to Section 26 05 26. Connect equipment ground bars of panels in accordance with NFPA 70.

### 3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform circuit breaker inspections and tests listed in NETA ATS, Section 7.6.
- D. Perform controller inspections and tests listed in NETA ATS, Section 7.16.1.

### 3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for starting and adjusting.
- B. Measure steady state load currents at each panelboard feeder; rearrange circuits in panelboard to balance phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
- C. Touch-up scratched or marred surfaces to match original finish.
- D. Clean all debris from panel interiors.

### 3.5 LABELING

- A. Install engraved plastic nameplates in accordance with Section 26 05 53.
- B. Provide nameplates on all new electrical panelboards. Indicate the following information on the nameplate:
  - 1. Panel Name
  - 2. Panel fed from
  - 3. Voltage, Phase, Wire, Short Circuit Current Rating

- 4. Date Installed
- C. Use the following color coding for panelboard nameplates:
  - 1. Normal Power: White with Black Letters.
- D. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes to balance phase loads.
- E. Identify load served and location by room names assigned by user, not by room numbers on floor plans. Note spares and spaces as such. Spare circuit breakers shall be left in the open position.

### 3.6 CLEARANCE AND WORKSPACE

- A. Maintain workspace and clearances as required by the NEC for voltages encountered. No pipes or ducts shall pass above the outline of the panelboard. It shall be the responsibility of this Contractor to make sure that other trades do not encroach on this space.

END OF SECTION

## SECTION 26 27 26 - WIRING DEVICES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes wall switches; wall dimmers; receptacles; multioutlet assembly; and device plates and decorative box covers.
- B. Related Sections:
  - 1. Section 26 05 33 - Raceway and Boxes for Electrical Systems: Outlet boxes for wiring devices.

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA WD 1 - General Requirements for Wiring Devices.
  - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

#### 1.3 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. Arrow Hart
  - 2. Eagle
  - 3. Legrand
  - 4. Hubbell
  - 5. Leviton
  - 6. Lutron
  - 7. Substitutions: Section 01 60 00 - Product Requirements.

#### 2.2 WALL SWITCHES

- A. Product Description: NEMA WD 1, Heavy-Duty, AC only general-use snap switch.
- B. Body and Handle: Ivory plastic with toggle handle.
- C. Ratings: Match branch circuit and load characteristics.

## 2.3 WALL DIMMERS

- A. Body and Handle: Ivory plastic with linear slide.
- B. Voltage: As indicated on drawings.
- C. Power Rating: Match load shown on drawings; 600 watts minimum.
- D. Accessory Wall Switch: Match dimmer appearance.

## 2.4 RECEPTACLES

- A. Product Description: NEMA WD 1, Heavy-duty general use receptacle.
- B. Device Body: Ivory plastic.
- C. Configuration: NEMA WD 6, type as indicated on Drawings.
- D. Convenience Receptacle: Type 5-20.
- E. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

## 2.5 WALL PLATES

- A. Decorative Cover Plate: Ivory, plastic.

# PART 3 EXECUTION

## 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify outlet boxes are installed at proper height.
- C. Verify wall openings are neatly cut and completely covered by wall plates.
- D. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

## 3.2 PREPARATION

- A. Clean debris from outlet boxes.

## 3.3 EXISTING WORK

- A. Disconnect and remove abandoned wiring devices.
- B. Modify installation to maintain access to existing wiring devices to remain active.

- C. Clean and repair existing wiring devices to remain or to be reinstalled.

### 3.4 INSTALLATION

- A. Install devices plumb and level.
- B. Install switches with OFF position down.
- C. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
- D. Do not share neutral conductor on load side of dimmers.
- E. Install receptacles with grounding pole on bottom.
- F. Connect wiring device grounding terminal to outlet box with bonding jumper and branch circuit equipment grounding conductor.
- G. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
- H. Connect wiring devices by wrapping solid conductor around screw terminal. Install stranded conductor for branch circuits 10 AWG and smaller. When stranded conductors are used in lieu of solid, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws.
- I. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

### 3.5 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes provided under Section 26 05 33 to obtain mounting heights as indicated on drawings.

### 3.6 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect each wiring device for defects.
- C. Operate each wall switch with circuit energized and verify proper operation.
- D. Verify each receptacle device is energized.
- E. Test each receptacle device for proper polarity.
- F. Test each GFCI receptacle device for proper operation.

3.7 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust devices and wall plates to be flush and level.

3.8 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION

## SECTION 26 51 00 - INTERIOR LIGHTING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes interior luminaires, lamps, ballasts, and accessories.
- B. Related Sections:
  - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
  - 2. Section 26 05 33 - Raceway and Boxes for Electrical Systems.

#### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C82.1 - American National Standard for Lamp Ballast-Line Frequency Fluorescent Lamp Ballast.
  - 2. ANSI C82.4 - American National Standard for Ballasts-for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type).
  - 3. ANSI C78.377 - Specifications for the Chromaticity of Solid State Lighting Products.
- B. Illuminating Engineering Society (IES)
  - 1. LM-79 - Approved Method: electrical and Photometric Testing of Solid-State Lighting Devices.
  - 2. LM-80 - Approved Method: Measuring Lumen Depreciation of LED Light Sources.
  - 3. TM-21 - Projecting Long Term Lumen Maintenance of LED Light Sources.

#### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate dimensions and components for each luminaire not standard product of manufacturer.
- C. Product Data: Submit dimensions, ratings, and performance data. Submit LM-79 data, including LED Facts sheets or other 3rd party testing documents for all LED fixtures.

#### 1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

#### 1.5 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## PART 2 PRODUCTS

### 2.1 LUMINAIRES

- A. See Lighting fixture schedule on plans for information on luminaires.
  - 1. Basis-of-Design Product: The design for each lighting fixture is based on the product named from the first manufacturer listed in the schedule. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified, or a prior approved manufacturer.
  - 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Complete interior luminaire assemblies, with features, options, and accessories as scheduled.
- C. LED Luminaires: Comply with UL 8750
  - 1. LED fixtures shall be complete assemblies. Fixtures designed around a different lamp source with an LED type replacement lamp shall not be accepted.
  - 2. Minimum Rated Life: 50,000 hours per IES L70.

### 2.2 FLUORESCENT BALLASTS

- A. Product Description: Electronic ballast instant start less than 10 percent THD High-power-factor type electromagnetic ballast certified by Certified Ballast Manufacturers, Inc. to comply with ANSI C82.1, suitable for lamps specified, with voltage to match luminaire voltage.

### 2.3 DRIVERS FOR LED LUMINAIRES

- A. Electronic integrated circuit, solid-state, full-light-output, energy-efficient type compatible with lamps and lamp combinations to which connected.
  - 1. Certification by Electrical Testing Laboratory (ETL). Can be UL recognized, but Listed when part of a fixture assembly.
  - 2. Drivers shall have a minimum efficiency of 85%.
  - 3. Sound Rating: "A" rating.
  - 4. Voltage: Match connected circuits.
  - 5. Starting Temperature: -30 deg. C to 50 deg C.
  - 6. Minimum Power Factor: 90 percent.
  - 7. Total Harmonic Distortion (THD) of Ballast Current: Less than 10 percent.
  - 8. Conform to FCC Regulations Part 15, Subpart J for electromagnetic interference.
  - 9. Lamp-Driver connection method does not reduce normal rated life of lamps.
- B. Drivers for Dimmer Controlled Lighting Fixtures.
  - 1. Dimming Range: 100 to 10 percent of rated fixture lumens.
  - 2. Compatibility: Certified by manufacturer for use with specific dimming control system and lamp type.
  - 3. Driver shall provide equal current to all LED modules for even lighting.

## 2.4 FLUORESCENT LAMPS

- A. Low-Mercury Lamps: Comply with EPA's toxicity characteristic leaching procedure test; shall yield less than 0.2 mg of mercury per liter when tested according to NEMA LL 1.

## PART 3 EXECUTION

### 3.1 EXISTING WORK

- A. Disconnect and remove abandoned luminaires, lamps, and accessories.
- B. Extend existing interior luminaire installations using materials and methods compatible with existing installations, or as specified.
- C. Clean and repair existing interior luminaires to remain or to be reinstalled.

### 3.2 INSTALLATION

- A. Install suspended luminaires using pendants supported from swivel hangers. Install pendant length required to suspend luminaire at indicated height.
- B. Support luminaires independent of ceiling framing.
- C. Locate recessed ceiling luminaires as indicated on Drawings and as indicated on reflected ceiling plan.
- D. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.
- E. Install recessed luminaires to permit removal from below.
- F. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.
- G. Install clips to secure recessed grid-supported luminaires in place.
- H. Install wall-mounted luminaires at height as indicated on Drawings.
- I. Install accessories furnished with each luminaire.
- J. Connect luminaires to branch circuit outlets provided under Section 26 05 33 using flexible conduit as indicated on Drawings.
- K. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- L. Install specified lamps in each luminaire.

M. Ground and bond interior luminaires in accordance with Section 26 05 26.

### 3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

### 3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Aim and adjust luminaires as indicated on Drawings.

### 3.5 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Remove dirt and debris from enclosures.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

### 3.6 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Relamp luminaires having failed lamps at Substantial Completion.

END OF SECTION

## SECTION 283101 - FIRE DETECTION AND ALARM

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes modification of existing fire alarm system.

#### 1.2 REFERENCES

- A. The system and all associated operations shall be in accordance with the following:
  - 1. Guidelines of the following Building Codes: International Code Series
  - 2. NFPA 72, National Fire Alarm Code
  - 3. NFPA 70, National Electrical Code
  - 4. NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems
  - 5. Other applicable NFPA standards
  - 6. Local Jurisdictional Adopted Codes and Standards
  - 7. ADA Accessibility Guidelines

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Division 26 Section "Common Work Results for Electrical Systems." The contractor shall not begin the installation of any raceways or boxes for the fire alarm system until shop drawings and product data have been reviewed by the Architect/Engineer.
- B. Product Data: Submit product data for all fire alarm system components including dimensioned plans, sections, and elevations showing minimum clearances, installed features and devices, and list of materials.
- C. Wiring Diagrams: Submit wiring diagrams from the manufacturer differentiating between manufacturer-installed and field-installed wiring. Include diagrams for equipment wiring and for system wiring with all terminals and interconnections identified. Include drawings indicating components for both field and factory panel wiring.
- D. Shop Drawings: Submit shop drawings from the manufacturer indicating all horizontal and vertical building wiring for detection, alarm, and communications circuits. Include equipment types and locations, raceway sizes, number and type of wires/cables, and conductor color coding for each circuit type. Shop drawings shall be prepared by a NICET Level II certified technician. Shop drawings shall be provided on 30" x 42" (E-size) prints. In addition to the requirements of Division 26 Section "Common Work Results for Electrical Systems".

- E. Battery Calculations: Submit battery capacity calculations for both alarm and supervisory modes.
- F. Voltage Drop Calculations: Submit calculations for voltage drop of each notification appliance circuit.
- G. Operation and Maintenance Data: Submit operation and maintenance data that will be included in the operating and maintenance manual specified in Division 26 Section "Common Work Results for Electrical Systems." Operation and maintenance data shall cover each type of product, including all features and operating sequences, both automatic and manual. In addition, provide the following:
  - 1. A list of CPU addresses for every device that is provided for purposes of alarm initiation, status monitoring, supervised notification appliance circuits, and auxiliary control.
  - 2. A list of detector sensitivity setpoints for all installed smoke and heat detectors.
- H. Product certification: Submit a product certification letter signed by the manufacturer of the fire alarm system components certifying that their products comply with the referenced standards.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: NICET Level II certified fire alarm technician.
  - 1. Authorized representative of control unit manufacturer; submit manufacturer's certification that installer is authorized; include name and title of manufacturer's representative making certification.

#### 1.5 WARRANTY

- A. Provide installer's warranty that the installation is free from defects and will remain so for 1 year after date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Fire Alarm Control Units - Basis of Design: FCI

#### 2.2 FIRE ALARM SYSTEM

- A. Fire Alarm System: Expand the existing automatic fire detection and alarm system:
  - 1. Provide all components necessary, regardless of whether shown in the contract documents or not.
  - 2. Comply with the following; where requirements conflict, order of precedence of

requirements is as listed:

- a. The Americans With Disabilities Act (ADA).
  - b. The requirements of the local authority having jurisdiction, (DHEC).
  - c. The contract documents (drawings and specifications).
  - d. NFPA 72; where the word "should" is used consider that provision mandatory; where conflicts between requirements require deviation from NFPA 72, identify deviations clearly on design documents.
3. Evacuation Alarm: Multiple smoke zones; allow for evacuation notification of any individual zone or combination of zones, in addition to general evacuation of entire premises.
  4. General Evacuation Zones: Each smoke zone is considered a general evacuation zone unless otherwise indicated, with alarm notification in all zones on the same floor, on the floor above, and the floor below.
- B. Circuits:
1. Initiating Device Circuits (IDC): Match Existing
  2. Signaling Line Circuits (SLC) Within Single Building: Match Existing
  3. Notification Appliance Circuits (NAC): Match Existing
- C. Power Sources:
1. Primary: Dedicated branch circuits of the facility power distribution system.
  2. Secondary: Storage batteries.
  3. Capacity: Sufficient to operate entire system for period specified by NFPA 72.

## 2.3 EXISTING COMPONENTS

- A. On-Premises Supervising Station: Include as part of this work all modifications necessary to existing supervising station to accommodate new fire alarm work.
- B. Clearly label components that are "Not In Service."
- C. Remove unused existing components and materials from site and dispose of properly.

## 2.4 FIRE SAFETY SYSTEMS INTERFACES

- A. Provide connection to all flow and tamper switches installed by the fire suppression contractor weather shown on the construction documents or not.

## 2.5 COMPONENTS

- A. General:
  1. Provide flush mounted units where installed in finish areas; in unfinished areas, surface mounted unit are acceptable.

2. Provide legible, permanent labels for each control device, using identification used in operation and maintenance data.
- B. Fire Alarm Control Units, Initiating Devices, and Notification Appliances: Addressable type; listed by Underwriters Laboratories as suitable for the purpose intended.
- C. Initiating Devices:
  1. Manual Pull Stations: match existing
  2. Smoke Detectors: photo electric type, match existing
  3. Heat Detectors: rate of rise type, match existing
  4. Addressable Interface Devices: provide as required
- D. Notification Appliances:
  1. Speakers: Match existing.
  2. Strobes: adjustable candela - Match existing.
- E. Surge Protection: In accordance with IEEE C62.41 B3 combination waveform and NFPA 70; except for optical fiber conductors.
- F. Locks and Keys: Deliver keys to owner.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with applicable codes, NFPA 72, NFPA 70, and the contract documents.
- B. Conceal all wiring, conduit, boxes, and supports where installed in finished areas.

### 3.2 INSPECTION AND TESTING FOR COMPLETION

- A. Notify engineer 7 days prior to beginning completion inspections and tests.
- B. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.
- C. Provide the services of the installer's supervisor or person with equivalent qualifications to supervise inspection and testing, correction, and adjustments.
- D. Prepare for testing by ensuring that all work is complete and correct; perform preliminary tests as required.
- E. Provide all tools, software, and supplies required to accomplish inspection and testing.

- F. Perform inspection and testing in accordance with NFPA 72 and requirements of local authorities; document each inspection and test.
- G. Correct defective work, adjust for proper operation, and retest until entire system complies with contract documents.

### 3.3 CLOSEOUT

- A. Closeout Demonstration: Demonstrate proper operation of all functions to owner.
  - 1. Be prepared to conduct any of the required tests.
  - 2. Have at least one copy of operation and maintenance data, preliminary copy of project record drawings, input/output matrix, and operator instruction chart(s) available during demonstration.
  - 3. Have authorized technical representative of control unit manufacturer present during demonstration.
  - 4. Demonstration may be combined with inspection and testing required by authority having jurisdiction; notify authority having jurisdiction in time to schedule demonstration.
  - 5. Repeat demonstration until successful.
- B. Substantial Completion of the project cannot be achieved until inspection and testing is successful and:
  - 1. Approved operating and maintenance data has been delivered.
  - 2. All aspects of operation have been demonstrated to Engineer.
  - 3. Final acceptance of the fire alarm system has been given by authorities having jurisdiction.
  - 4. Specified pre-closeout instruction is complete.

END OF SECTION