

PROJECT MANUAL

For

UNIVERSITY OF SOUTH CAROLINA AIKEN
Economics Department Renovations
Aiken, South Carolina
H29-I344

November 24, 2014



mcmillan|pazdan|smith
architecture
greenville south carolina

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PROJECT NAME: USC-Aiken Economics Department Renovation

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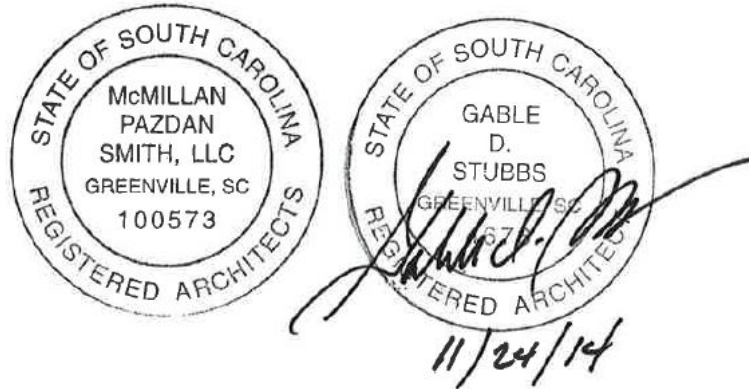
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1 Architect Seals



2 Electrical Seals



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SE-310
REQUEST FOR ADVERTISEMENT

2011 Edition
Rev. 7/28/2014

PROJECT NAME: USC Aiken Economics Department Renovation

PROJECT NUMBER: H29-1344

PROJECT LOCATION: Aiken, SC

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: < \$125,000

DESCRIPTION OF PROJECT: Interior renovations and improvements to the first floor lobby and the second floor office spaces. See drawings and project manual for more detailed information. Minority and small business participation is encouraged.

A/E NAME: McMillan Pazdan Smith Architecture, LLC

A/E CONTACT: Gable D. Stubbs

A/E ADDRESS: Street/PO Box: 200 E. Broad Street, Suite 300

City: Greenville

State: SC ZIP: 29601-

EMAIL: gstubbs@mcmillanpazdansmith.com

TELEPHONE: 864-242-2033

FAX: 864-242-2034

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

BIDDING DOCUMENTS/PLANS MAY BE OBTAINED FROM: https://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):*

Bidders are responsible for obtaining all updates to bidding documents from the USC Purchasing website. (<http://purchasing.sc.edu>)

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

DATE: 1/21/2015 **TIME:** 10:00 am **PLACE:** USCA - Supply & Maint Bldg 908, 471 University Pkwy, Aiken, SC

AGENCY: University of South Carolina

NAME OF AGENCY PROCUREMENT OFFICER: Clarissa Clark

ADDRESS: Street/PO Box: 743 Greene Street

City: Columbia

State: SC ZIP: 29208-

EMAIL: CLARKCG2@mailbox.sc.edu

TELEPHONE: 803-777-7162

FAX: 803-777-7334

BID CLOSING DATE: 2/3/2015 **TIME:** 3:00 pm **LOCATION:** 743 Greene Street, Columbia, SC 29208

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Clarissa Clark

BID ENCLOSED

743 Greene Street

Columbia, SC 29208

MAIL SERVICE:

Attn: Clarissa Clark

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:** _____

AIA Document A701
Instructions to Bidders

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

OSE FORM 00201**STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS****OWNER:** University of South Carolina**PROJECT NUMBER:** H29-I344**PROJECT NAME:** USC Aiken Economics Department Renovations**PROJECT LOCATION:** University of South Carolina Aiken, 471 University Pkwy, Aiken, SC 29801**PROCUREMENT OFFICER:** Clarissa Clark**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

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 shall be used for both Alternates and Base Bid Work if Alternates are accepted.

2.22. Delete Section 4.1.6 and substitute the following:

4.1.6 Pursuant to Title 11, Chapter 35, Section 3020(b)(i) of the South Carolina Code of Laws, as amended, Section 7 of the Bid Form sets forth a list of subcontractor specialties for which Bidder is required to 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.

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

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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-Authority 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-responsible

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

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

2.37. *Insert the following Section 6.4*

6.4 CLARIFICATION

Pursuant to Section 11-35-1520(8), the Procurement Officer may elect to communicate with a Bidder after opening for the purpose of clarifying either the Bid or the requirements of the Invitation for Bids. Such communications may be conducted only with Bidders who have submitted a Bid which obviously conforms in all material aspects to the Invitation for Bids and only in accordance with Appendix 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****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

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**

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: Lobby

Building Where Posted: Facilities Management Center

Address of Building: 743 Greene Street, Columbia, SC 29208

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

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

9.5 PROTEST OF SOLICITATION OR AWARD

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

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,

(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

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

Note: AIA Document A310

Contractor to Provide

Bid Bond

In the form of

AIA A310

SE-330 – LUMP SUM BID BID FORM

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 USC Aiken Economics Department Renovations

PROJECT NUMBER H29-I344

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

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

(Bidder check one)

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

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): Interior renovations and improvements to the first floor lobby and the second floor office spaces. See drawings and project manual for more detailed information. Minority and small business participation is encouraged.

_____, which sum is hereafter called the Base Bid.

(Bidder - insert Base Bid Amount on line above)

**SE-330 – LUMP SUM BID
BID FORM**

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

ALTERNATE # 1 (Brief Description): _____

ADD TO or **DEDUCT FROM BASE BID:** _____

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

ALTERNATE # 2 (Brief Description): _____

ADD TO or **DEDUCT FROM BASE BID:** _____

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

ALTERNATE # 3 (Brief Description): _____

ADD TO or **DEDUCT FROM BASE BID:** _____

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

**SE-330 – LUMP SUM BID
BID FORM**

2011 Edition

Rev. 2/14/14

§ 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:

SUBCONTRACTOR SPECIALTY By License Classification and/or Subclassification (Completed by Owner)	SUBCONTRACTOR'S PRIME CONTRACTOR'S NAME (Must be completed by Bidder) BASE BID	SUBCONTRACTOR'S PRIME CONTRACTOR'S SC LICENSE NUMBER
Mechanical - AC		
Mechanical - HT		
ALTERNATE 1		
ALTERNATE 2		
ALTERNATE 3		

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 90 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 \$150.00 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. 2/14/14

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: _____

AIA Document A101
Standard Form of Agreement Between Owner and
Contractor

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

OSE FORM 00501
STANDARD MODIFICATIONS TO AGREEMENT BETWEEN
OWNER AND CONTRACTOR

OWNER: University of South Carolina

PROJECT NUMBER: H29-I344

PROJECT NAME: USC Aiken Economics Department Renovations

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 3.3 and substitute the following:*

3.3 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**

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: Asst Director of USC Facilities Design & Construction
Address: 743 Greene Street, Columbia, SC 29229
Telephone: 803-777-5500 **FAX:** n/a
Email: topal@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: Troy Green
Title: Project Manager
Address: 743 Greene Street, Columbia, SC 29208
Telephone: 803-777-8256 **FAX:** n/a
Email: green@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: TBD
Title: _____
Address: _____
Telephone: _____ **FAX:** _____
Email: _____

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

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: TBD
Title: _____
Address: _____
Telephone: _____ FAX: _____
Email: _____

2.14. *Add the following Section 8.6.1:*

8.6.1 The Architect's representative:

Name: Gable D. Stubbs, AIA
Title: Project Architect
Address: PO Box 8922, Greenville, SC 29604
Telephone: 864-252-2033 FAX: 864-242-2034
Email: gstubbs@mcmillanpazdansmith.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

AIA Document A201
General Conditions of the Contract for Construction

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

OSE FORM 00811

STANDARD SUPPLEMENTARY CONDITIONS

OWNER: University of South Carolina

PROJECT NUMBER: H29-I344

PROJECT NAME: USC Aiken Economics Department Renovations

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.

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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.

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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

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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 Contactor 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 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.

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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 is 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

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

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

3.81 *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) \$1,000,000
- (b) Products/Completed Operations \$1,000,000
- (c) Personal and Advertising Injury \$1,000,000
- (d) Each Occurrence \$1,000,000
- (e) Fire Damage (Any one fire) \$50,000
- (f) Medical Expense (Any one person) \$5,000

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

- (a) Combined Single Limit \$1,000,000

(3) WORKER’S COMPENSATION:

- (a) State Statutory
- (b) Employers Liability \$100,000 Per Acc.
 \$500,000 Disease, Policy Limit
 \$100,000 Disease, Each Employee

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

3.82 *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 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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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)

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.

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

3.129 *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

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Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has 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

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Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

15.6.2 If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina’s Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all claims, claims, or controversies relating to the Contract shall be resolved exclusively by the appropriate Chief Procurement Officer in accordance with Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws, or in the absence of jurisdiction, only in the Court of Common Pleas for, or in the absence of jurisdiction a federal court located in, Richland County, State of South Carolina. Contractor agrees that any act by the State regarding the Contract is not a waiver of either the State’s sovereign immunity or the State’s immunity under the Eleventh Amendment of the United State’s Constitution.

15.6.3 If any party seeks resolution to a dispute pursuant to Section 15.6.2, the parties shall participate in non-binding mediation to resolve the claim. If the claim is governed by Title 11, Chapter 35, Article 17 of the South Carolina Code of Laws as amended and the amount in controversy is \$100,000.00 or less, the CPOC shall appoint a mediator, otherwise, the mediation shall be conducted by an impartial mediator selected by mutual agreement of the parties, or if the parties cannot so agree, a mediator designated by the American Arbitration Association (“AAA”) pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator.

15.6.4 Without relieving any party from the other requirements of Sections 15.5 and 15.6, either party may initiate proceedings in the appropriate forum prior to initiating or completing the procedures required by Sections 15.5 and 15.6 if such action is necessary to preserve a claim by avoiding the application of any applicable statutory period of limitation or repose.

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: TBD
- Plumbing: _____
- Electrical: TBD
- Gas: _____
- Other *(list)*: _____

Remarks: Inspections will be provided by owner.

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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)*

Refer to Specification Section 01 78 39 Project Record Documents

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

Refer to Specification Section 01 33 00 - Submittal Procedures

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

Refer to Specification Section 01 50 00 Temporary Facilities and Controls.

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

none.

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

Refer to Specification Section 01 73 13 Additional Supplementary Conditions.

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 one 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 mates on 12" coarse, chipped, hardwood base. Mulch and logging mats shall be supplemented throughout the project to keep 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.

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina
Project No. H29-I344

Project No. 014007.01
November 24, 2014
mcmillan | pazdan | smith

Project Name: USC Aiken Economics Department Renovation

Project Number: H29-I344

University of South Carolina

CONTRACTOR'S ONE YEAR GUARANTEE

STATE OF _____

COUNTY OF _____

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

Defects or failures resulting from abuse by Owner.

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

[Name of Contracting Firm]

*By _____

Title _____

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

SWORN TO before me this _____ day of _____, 20____ (seal)

_____ State

My commission expires _____

SE-355
Performance Bond

2011 Edition
Rev.10-29-12

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: USC Aiken Economics Department Renovations
State Project Number: H29-I344
Brief Description of Awarded Work, as found on the SE-330, Bid Form: Interior renovations and improvements to the first floor lobby and the second floor office spaces. See drawings and project manual for more detailed information. Minority and small business participation is encouraged.

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

Name: McMillan Pazdan Smith Architecture, LLC
Address: 200 E. Broad Street, Suite 300
Greenville, SC 29601

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

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

2011 Edition
Rev.10-29-12

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: USC Aiken Economics Department Renovations

State Project Number: H29-I344

Brief Description of Awarded Work, as found on the SE-330, Bid Form: Interior renovations and improvements to the first floor lobby and the second floor office spaces. See drawings and project manual for more detailed information. Minority and small business participation is encouraged.

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

Name: McMillan Pazdan Smith Architecture, LLC

Address: 200 E. Broad Street, Suite 300
Greenville, SC 29601

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)

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.

REQUEST FOR SUBSTITUTE FORM

INSTRUCTIONS

Please read the specifications before completing this form.

This form is only applicable to requests for substitutes that are made during the Bidding Phase.

All requests for substitutes after Contract Execution shall be in accordance with the General Requirements Section 01 25 00 Substitution Procedures and approved by the State Engineer.

Although the form is detailed and the requested information is specific, it is no more than what was requested from manufactures that are listed in the project specifications. However, approval of this form does not necessarily imply approval for future projects. Products, materials, and components not specified or approved but are installed will be removed and replaced with acceptable products, materials, components at the Contractors expense.

Submit this form along with all required supporting product data, specifications and performance criteria when requesting the use of products or services that are not listed in the Specifications.

Receipt of inquiries or submittals without this completed Request For Substitute form will not be considered. Include only one request for substitution on each form. Incomplete forms; forms with vague or unspecific answers; forms without supporting data to substantiate equal or superior quality/design; forms that do not include requested proof, verification, reports, and substantiating documentation; or forms received after the time established in the Instructions will be disapproved.

The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified item even if they are not specifically mentioned in the Contract Documents. Products of manufacturers other than those specified may be acceptable after proper submittal to the Architect and after the Architect's review. However, manufacturers capable of providing specified products shall not, for the convenience of their normal production methods, vary from the specified product.

Where test data and standards are being submitted as supporting data and for comparison with the specified item, submit certified data provided by an independent testing laboratory. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria. Identify and define all abbreviations and acronyms. All substitutes shall meet all of the minimum performance criteria of the specified product. Submittals not complying with this provision will be considered incomplete, unacceptable, and will be rejected. Where not applicable or NA is entered, state why the item is not applicable. Knowingly and intentionally providing incorrect information is fraud.

Complete the following parts as follows:

PART 1: Complete for all requests for substitutes. Contains general, substitute product, marketing/sales, manufacturer, warranty.

PART 6: Complete only for painting substitutes.

PART 1 (All Substitutes)
Project Name

Date:

Specification No.:

Drawing No. Reference:

Name of Specified Item:

Substitute Information

Name of Substitute:

Manufacturer of Substitute:
Name:

Address:

Telephone No.:
Years in Business:

Fax No:

General Information

1. Has the entity submitting this Request For Substitute read and fully understands the applicable specifications and stated provisions. Yes ___ No ___. If no, please explain.
2. Is this request being made by a General Contractor? ___; Sub-Contractor/Installer? ___;
Product Manufacturer? ___; Manufacturer's Representative? ___
If known, please give the name and address of the general contractor or subcontractor/installer.
3. If the entity requesting the substitute will not be the installer, please provide the following information about the intended installer if known:
Name:

Address:

Telephone No.:
Years in Business: Years installing this product:
Did the manufacturer certify the installer? Yes ___ No ___ If yes, when:
Is the certification still effective? Yes ___ No ___
Did the manufacturer train the installer? Yes ___ No ___ If yes, when:

Fax No:

4. If the entity requesting the substitute is a distributor, list all installers within 50 miles of the project site that you sell to:

5. Who will service the substitute?

6. Why is this substitute being requested? Competitive pricing or being local are not acceptable answers. Please be specific! If specified product will not be available in sufficient time for installation, submit supporting information that appropriate lead time was considered when inquiring or ordering. Submit proof including dated inquiry, dated purchase order, and dated correspondence from manufacturer.

Substitute Product Information

1. Including installation and operational costs, will the substitute be less expensive than the specified entity? Yes _____ No _____ Same _____. (Don't know or can't be determined are not acceptable answers)
 - a. If No or the same, why should the substitute be considered? If more expensive, why is it more expensive? (Please be specific!).

 - b. If less expensive, why is it less expensive? (Please be specific)

2. What is the functional and physical difference between the specified item and the substitute? If there are no differences, why should this substitute be approved? (Please be specific!)

3. Other than cost, what are the proven and verifiable benefits or advantages of the substitute item? (Please be specific! Convince us. Don't just reference product data. Being local does not necessarily mean better or more economical. Mention any unique benefits or attributes). If there are none, why should this substitute be approved?
 - a. If the substitute is more economical, why is it more economical? Please provide detailed cost comparison including material and labor as to why costs are more economical.

 - b. If the substitute is better, why/how is it better? Show side-by-side comparison

- c. What does the substitute do that the specified will not do?
- d. If service for the substitute is better, why/how is it better?
4. Are there any known failures of the substitute? If so, where and when did the failures occur and what was the probable cause of the failures?
- 5 Will the Owner have difficulty getting the substitute serviced or repaired?
- 6 Does the substitute installer meet all of the specified qualifications and requirements? Yes: ___
No: ___. If no, please describe the differences.
7. Will the proposed substitution affect dimensions shown on the Drawings? Yes ___ No ___. If yes, please explain.
8. Will the proposed substitution have an adverse affect on other trades, the construction schedule, or specified warranty requirements. Yes ___ No ___ If yes, please explain.
10. Will maintenance and service parts for the proposed substitution will be readily available locally? Yes ___ No ___ If no, please explain.
11. Will the proposed substitute meet or exceed all aspects of the specifications, including overall performance, appearance, and manufacturer's/installers qualifying criteria stated in the Contract Documents? Yes ___ No ___ If no, please explain.
- 12 Will the proposed substitute meet all applicable governing codes, regulations, and listed or indicated UL assemblies? Yes ___ No ___ Not Applicable _____. If no, please explain.
13. Does the substitute have any affect on other contractors or trades? Yes ___ No ___. If yes, please explain.

Installer Information

If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, complete the following installer information for each installer that may be selected. If this is for a metal roof installer, omit this section and complete Part 7 of this form.

1. Who will install the substitute Product? Provide
Name
Address
Telephone No.
Contact Person?
2. How long has installer been in business? _____ Years
3. How long has the installer operated under this name? _____ Years
4. Has installer ever operated under a different name? Yes ___ No ___
5. If yes, under what name?

6. If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, how long have you had a business relationship with the installer? ___years.
7. Will installer purchase the substitute or specified product directly from the manufacturer? Yes ___ No _____. If no, please provide name and address of entity the product will be purchased from?
8. Years experience installing the specified or substitute product/system? _____years.
9. When required by the contract documents, has the installer been trained, qualified, and approved by the manufacturer prior to the date of Advertisement or Invitation for Bids for this project? Yes _____ No _____. If yes, how was approval obtained?
10. Has the installer ever had a manufacturer's approval or certification revoked because of unsatisfactory performance? Yes ___ No _____. If yes, please explain.
11. Will installer maintain a trained work force, including a non-working supervisor on project site at all time installation is in progress? Yes _____ No _____. If no, please explain why?
12. Will the installer install the entire product/system with own employees? Yes ___ No. _____. If no, please explain.
13. Does the installer presently have the staff and equipment on board to perform the contracted work? Yes _____ No _____. If no, please explain. For the purpose of this Contract, the installer's own employees are considered employees for which the installer contributes directly to and is directly financially responsible for the following employee expenses:
 - a. All Federal, State and Local Taxes
 - b. Social Security
 - c. Insurance
 - d. Workers Compensation
 - e. Holidays
 - f. Vacations
 - g. Sick Time
 - h. Retirement
14. Has the installer successfully completed a minimum of 5 projects of the size and complexity as required fro this project? Yes _____ No _____.
15. Has the installer completed at least 80% of projects on time and under budget? Yes _____ No _____.
16. Has the installer been refused a bond in the last 5 years? Yes _____ No _____. If no, please submit proof.
17. Does the installer provide a written warranty? If yes, length of material and labor warranty? Material ___ years. Labor warranty? ___years. If no, please explain.

18. How many warranty claims have been filed against the installer within the last 3 years?
None _____ Labor _____ Product _____
19. Are there any judgments, claims, or arbitration proceedings or suits pending against the installer? Yes _____ No _____. If yes, please explain.
20. Has the installer ever failed to complete any portion of any assigned or contracted work?
Yes ___ No ___ If yes, please explain.
21. Does the installer have verifiable means to provide necessary funds to honor warranty requirements? Yes _____ No _____. Please submit proof.
22. Has the installer ever filed for protection under either Chapter 7 or 11 of the US Bankruptcy Laws within last 5 years under this name or any other name? Yes _____ No _____. If yes, please explain
23. Does the installer have a current and active open line of credit with the product/system/material manufacturer (A distributor is not acceptable). Yes _____ No _____. If no, please explain. If the manufacturer does not sell directly to installers, where will the product/system/material manufacturer be purchased?

Sales/Marketing Information

1. How long has this substitute been on the market? _____ years.
2. Did this substitute replace a previous product? Yes _____ No _____. If yes, why.
3. Is the substitute an improvement of a previous product? Yes _____ No _____. If yes, what is the improvement.
4. What was the annual sales volume of this substitute last year?
5. How much more or less is this than the previous year's volume? More _____ Less _____
6. In sales volume of this product, where does the manufacturer rank compared to other manufacturers of the same product? Top 5 10, 15, 20 of _____ manufacturers.
7. How long has the substitute been marketed locally (within 75 miles) to the project? _____ years. List 3 local installations of comparable type, size, and scope where substitute has been successfully used and has been in place and in use for a minimum of 3 years:
- a.
 - b.
 - c.
8. If the product has not been installed locally (within 75 miles), why do you think that is so?

9. If substitute has been marketed elsewhere, but not locally to the project, why?

10. Is substitute listed in SWEETS Catalogs? Yes ___ No ___ If no why?

11. Is product listed in AIA Masterspec? Yes ___ No ___ If no, why?

12. Has this same substitute been marketed under a different name or by a different manufacturer? Yes ___ No ___ If so, please state details

Manufacturer/Fabricator Information

1. How long has the manufacture been in business? _____ years.

2. How long has the manufacturer been operating under the present name? _____ years.

3. Has the manufacturer operated under any other name? Yes ___ No ___ If so, what name?

4. What other products does the manufacturer produce?

5. Has the manufacture, supplier, or contractor ever failed to complete any portion of any assigned or contracted work? Yes ___ No ___ If yes, please explain.

6. Does the substitute manufacturer meet all of the specified qualifications and requirements? Yes: ___ No: ___. If no, please describe the differences.

7. When specified, will the installers be certified and factory-trained by the manufacturer? Yes ___ No ___ Not Applicable _____. If no, please explain.

8. Does the manufacturer presently meet all specified qualifying criteria. Yes ___ No _____. If no, please explain.

9. Does the manufacturer comply with the special warranty provisions, when they are specified. Yes ___ No ___ Not Applicable _____. If no, please explain.

10. Will the installer meet all specified qualifying criteria. Yes ___ No _____. If no, please explain.

Warranty Information

1. Does substitute manufacturer provide a warranty? Yes: _____ No: _____.

2. If no, why not?

3. If yes, are the warranty provisions equal to or better than those of the specified product, including the exclusions? Yes: _____ No: _____.

4. What provisions or exclusions does the substitute manufacturer's warranty have that are not in the specified warranty?

5. If the manufacturer's warranty period exceeds the time the manufacturer has been in business or the time the product has been available or marketed, how was the warranty time determined? Please be specific.
6. How many warranty claims have been filed against this product in the last 5 years? If product is less than 5 years old, then how many claims since the product was introduced? 0 ___ 1-5 ___ 6-10 ___ Over 10 ___.
7. Are there outstanding warranty claims against this product now? Yes: ___ No: ___. If yes, what is the longest period? ___ months. What is its disposition.
8. If there has been warranty a claim, what was the basis of the claim?
9. If there was more than one claim, were the claims for the same reason? Yes: ___ No: ___. If yes, what is the reason? If claim is related to a design or manufacturing problem, has the problem been corrected?
10. Does warranty require Owner's signature for proper execution? Yes ___ No ___. If yes, Can it be revised to exclude Owner's signature? Yes ___ No ___.
If the warranty cannot be revised, will the manufacturer issue a certified letter stating that the Owner's signature does not deprive the Owner of other rights, including, but not limited to, provisions under the Uniform Commercial Code and the Magnusson Moss Act. Yes ___ No ___.
11. Is the warranty pro-rated? Yes ___ No ___.
12. Are there any judgments, claims, or arbitration proceedings or suits pending against the substitute entity? Yes ___ No ___. If yes, please explain.

Foreign Manufacturer

1. Is the manufacturer of proposed item foreign owned? Yes: ___ No: ___
2. Is proposed item manufactured or assembled outside of the United States? Yes: ___ No: ___. If yes, what percentage? ___ percent.
3. Is proposed item manufactured or assembled from components or materials manufactured or assembled outside of the United States? Yes: ___ No: ___. If Yes, what portion of the components or materials are manufactured or assembled outside the United States? ___ percent
4. Do you certify that the substitute product complies with the "Made In America" provisions stipulated elsewhere in the Contract Documents? Yes ___ No ___

Acknowledgements

1. Will the undersigned will pay for costs resulting in changes to the building design, including architectural and engineering design, detailing, and construction costs caused by incorporating the requested substitution or costs associated with any delays caused by deliveries of the substitute? Yes ___ No _____. If no, please explain.
2. If it is determined that a substitute does not fully comply with the Contract Documents after the substitute has been accepted or installed, will the undersigned assume responsibility for all applicable costs, including removal and installation of non-conforming products, to provide one of the specified products that does comply with the specifications. Yes ___ No _____. If no, please explain.
3. Is it understood and agreed to that final and ultimate approval of the substitute shall be determined at final completion of the project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in the removal of the substitute and the installation of approved product at contractor's expense. Yes _____ No _____. If no, please explain.

Enclosed Attachments:

- 1.
- 2.
- 3.
- 4.

Certification Of Performance And Assumption Of Liability

As a manufacturer or representative of the proposed substitution, it is presumed that you are the most knowledgeable of the proposed substitution. By signing this request, you certify that all information provided in this request is accurate and true. Additionally, you certify that the product, material, component, or service being submitted as a substitute for that specified meets or exceeds the performance, function, and appearance criteria listed in the specifications and in the manufacturer's published literature, and that all information provided in this Request For Substitute, including other applicable Parts, is true and accurate. The Signee also agrees to assume all liability for the ultimate performance, function, and appearance criteria of the submitted substitute.

Person Making Request:

Name:

Signature:

Company:

Address:

Telephone No.:

Fax No.:

Approved substitutes and manufacturers will be released by Addendum as described in the Instructions To Bidders

For Architect's Use

Approved: ____ Approved As Noted: ____
Disapproved: ____ Because ____
Received Too Late: ____
Incomplete Form: ____
Insufficient/Improper Supporting Data: ____
Does Not Meet Specifications: ____

PART 6 (Complete For Paint Substitutes)

1. Provide the following additional supporting information if this request is for a paint manufacturer.

a. Does the paint manufacturer have products and paint systems listed with the Master Painters Institute at the time of invitation or advertisement for bids for this project? Yes ____
No ____

b. Can the paint manufacturer provide published complete product performance data sheets for the specified products. These sheets shall be available at the time of invitation or advertisement for bids for this project? Yes ____ No ____ If no, how can performance criteria be compared?

c. Does the paint manufacturer have the production volume capacity to develop, produce and deliver the volume of paint and coatings required for this project within the required lead times to meet delivery dates without delaying the project? Yes ____ No ____

d. Is the paint manufacturer actively engaged in researching and developing its own paint and coating formulations? Yes ____ No ____ If no, why not? How is new technology incorporated?

e. Does the paint manufacturer specialize in manufacturing paint and protective coatings of the type specified for this project? Yes ____ No ____
If no, will the paint manufacturer actually produce the required products? Yes ____ No ____

f. Does the paint manufacturer employ a fully trained and experienced technical staff capable of providing necessary field support to investigate problems regarding surface preparation, application, and performance of supplied paints and coatings? Yes ____ No ____

g. Does technical staff shall have their own diagnostic equipment including dry film thickness gauges and adhesion gauges, etc. Yes____ No____

If yes, where is the technical specialist located, list the diagnostic equipment that is readily available and the experience in its use.

Technical Specialist:

Diagnostic Equipment:

If no, how are paint systems checked?

No_____.

ASBESTOS FREE CERTIFICATION
USC Aiken Economics Department Renovations
University of South Carolina Aiken
Aiken, South Carolina

This is to certify that the material furnished and/or installed by the undersigned subcontractor/vendor during the project, further described by McMillan Pazdan Architects Drawings and Specifications, contain no asbestos fibers.

Subcontractor/Vendor _____

Trade/Material Supplied: _____

Date: _____

Certified by: _____

Title: _____

MOISTURE CONTROL CERTIFICATION

For

USC Aiken Economics Department Renovations University of South Carolina Aiken Aiken, South Carolina

This is to certify that the below listed Contractor has read, understands, and has complied with the following requirements described in this Project Manual:

1. Using the Owner's HVAC system during construction, if permitted, as described in Division 1 General Requirements.
2. A Moisture Control Meeting was conducted in accordance with Division 1 Specification – Project Meetings and responsible entities reviewed all applicable drawings, details, shop drawings, and manufacturer's data for conflicts, compatibility, and coordination problems during installation. Discussion topics included, but were not limited to, the following:
 1. Reviewing installation details
 2. Delivery problems
 3. Keeping materials dry
 - a. Methods
 - b. Definition of wet materials
 - c. Disposition of wet materials
 - d. Wet materials are to be removed and not installed
 8. Acclimatizing the building
 9. Installing carpentry, woodwork and casework
 10. Installing wood, drywall, insulation, and painting
3. Provide the following information regarding the Moisture Control Meeting. This form is not complete without the requested information:
 - Meeting Date:
 - Meeting Location:
 - Meeting Moderator or Coordinator:
 - List of Attendees
 - Meeting Minutes

The Contractor further certifies that

1. All sub-contractors, including all tiers of sub-contractors and all suppliers were given copies of these requirements.
2. All construction disciplines, trades, and entities complied with all moisture control and intrusion provisions stipulated, implied, or inferred in the Contract Documents.

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina
Projec No. H29-I344

Project No. 014007.01
November 24, 2014
mcmillan | pazdan | smith

General Contractor: _____

Address: _____

Contractor's License Number: _____

By: _____

Title: _____

Date: _____

Phone Number: _____

Submit this executed Moisture Control Certification at Substantial Completion. Application for final payment will not be processed without this completed and signed form.

CONSTRUCTION CHANGE ORDER

Change Order No.: []

Agency: University of South Carolina
Project Number: H29-I344
Project Name: USC Aiken Economics Department Renovation

Contractor:
Contract Dated: For:

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

Adjustments in the Contract Sum:

Table with 5 rows for contract sum adjustments. Includes fields for original sum, change by previous orders, sum prior to change, amount of this change, and new total sum with dollar amounts.

Adjustments in Contract Time:

Table with 4 rows for contract time adjustments. Includes fields for original completion date, sum of previous changes in days, changes in days for this change, and new completion date.

Contractor Acceptance:

BY: _____ Date: _____
(Signature of Representative)
Print Name: _____

Architect Recommendation for Acceptance:

BY: _____ Date: _____
(Signature of Representative)
Print Name: _____

Agency Acceptance and Certification

BY: _____ Date: _____
(Signature of Representative)
Print Name: _____

- Change is within Agency Construction Procurement Certification amount of _____
Change is not within Agency Construction Procurement Certification amount

Office of the State Engineer Authorization for change not within Agency Construction Procurement Certification:

Signature of OSE Project Manager: _____
Date: _____

SE – 350 Questionnaire for Contractors

Pursuant to Section 11-35-1810 of the SC Code of Laws, as amended

Bidder Notification

This document is included as reference only. The college may elect as an option, with this project, to have the contractor that is the lowest responsive bidder complete and submit this form and its related documents in order to evaluate the contents as part of the determination phase of responsible bidder prior to issuing the notice of intent to award. An original copy of this document is available for complete content review by the bidder at the following location:

**University of South Carolina
Planning & Construction
743 Greene Street
Columbia, SC 29208**

During the following hours:

Monday thru Thursday - 8:00 AM to 4:00 PM

Friday – 8:00 AM to noon

Phone – (864) 250-8174

Technical Specifications

General Requirements

USC Aiken – Economics Department Renovations

The project location is: USC Aiken – Economics Department Renovations – 471 University Parkway, Aiken, SC 29801.

Contractor must adhere to specifications listed on the drawings (see drawings index) as prepared by McMillan Pazdan Smith Architecture. No alterations or substitution without the written consent of the architect. Any and all proposed changes will be submitted via written change order on form SE-480 with appropriate justification and supportive documents (proposals, quotes, etc).

ADMINISTRATIVE REQUIREMENTS:

1. The contractor and sub-contractor(s) and Owner will meet prior to the commencement of work. The meeting date and required attendees will be determined in the Notice to Proceed. No work will begin prior to the issuance of the SE-390 Form - Notice to Proceed.
2. The contractor shall establish his own working lines and they shall be based on the site plan provided by USCA Project Manager. All work will be limited to the site plan and any adjoining area as outlined during the pre-construction meeting.
3. Work schedule, normal working hours, and normal work week to be determined during pre-construction meeting.
4. Designated parking and lay down areas will be identified in the pre-construction meeting.
5. Owner will not furnish, labor, materials, or equipment to complete project.
6. The contractor and sub-contractor's personnel may utilize restroom facilities located in Bldg.
7. Contractor and subcontractor personnel may not use telephones or computers located in the building.
8. Contractor and subcontractor personnel are not to engage in conversation or fraternization with students, staff, or faculty of the college. Select USCA staff will be available for project discussion as the need arises.
9. Contractor will perform work safely in compliance with applicable requirements of governing authorities having jurisdiction; DHEC, OSHA, etc. All safety required equipment for the project will be provided by the contractor and/or sub-contractors.

10. Contractor will identify work zones, place construction barrier tape or other approved delineation, place appropriate signage around work zones, and prevent unauthorized entrance by unauthorized personnel.
11. Application for payment will be provided to the architect on the AIA- G702 & 703 form or equivalent.
12. Payment applications are to be submitted directly to the architect for certification. Once the architect certifies payment request, USCA Project Manager will forward to USCA Business Office for processing. Check(s) will be mailed to contractor's address. No check(s) will be issued to contractor personnel individually.

SECURITY/SAFETY PROCEDURES

1. Contractor/sub-contractor(s) will be responsible for the security of their equipment left on site during non-work hours.
2. Report suspicious activity, altercations, theft, vandalism, fire, accidents, damage to building or surrounding equipment etc., to USCA Police Department at 250-8911 and USCA Project Manager.
3. Contractor will perform work safely in compliance with applicable requirements of governing authorities having jurisdiction; DHEC, OSHA, etc. All safety required equipment for the project will be provided by the contractor and/or sub-contractors.
4. USCA is a tobacco free environment. Designated tobacco use areas are designated in parking lots around campus. Use of tobacco products is limited to only these areas. USCA Police enforces this policy. Violators are subject to fines and/or disciplinary action as outlined in USCA policy and procedures.
5. Concealed or open carry firearms are prohibited on USCA property. Only certified law enforcement officers may have a firearm in their possession on campus. Violators will be subject to arrest, fines, and other disciplinary action.
6. Alcohol and drug use is prohibited on campus. Contractor and subcontractor personnel deemed to be under the influence or observed utilizing drugs or alcohol will be turned over to USCA Police.
7. Individuals engaged in altercations (verbal or physical) will be turned over to USCA Police.
8. USCA reserves the right to request removal or restrict access to USCA property of any contractor or sub-contractor personnel.

WORK SITE INSPECTIONS

1. Chapter 1 Inspections will be provided by Owner through an independent firm approved by OSE.

PROJECT PROGRESS MEETINGS

1. Project progress meetings will be held once every two weeks throughout the duration of the project. The contractor, architect, and owner representatives will be in attendance at each meeting. Meeting minutes will be recorded and published.

PROJECT CLOSE OUT

1. Contractor will notify USCA Project Manager when Substantial Completion is achieved. Contractor shall furnish USCA with AIA – G704 Certificate of Substantial Completion.
2. USCA Project Manager and contractor will evaluate/inspect work site to determine items for close out punch list.
3. Contractor shall remove all equipment, temporary barriers, signage, etc., within a week of final completion date.
4. Contractor will provide USCA Project Manager, the following closeout documents:
 - a. Contractor's Affidavit of Payment of Debits and Claims – AIA G706
 - b. Contractor's Affidavit of Release of Liens – AIA G706A
 - c. Consent of Surety To Final Payment – AIA G707

End of General Requirements – 3/6/2014

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

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

B. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: USC Aiken – Economics Department Renovations

1. Project Location: 471 University Parkway – Aiken, South Carolina

B. Owner: University of South Carolina Aiken

1. Owner's representative:

C. Architect: McMillan Pazdan Smith Architecture, PO Box 8922, Greenville SC 29604

1. Architects representative: Gable Stubbs, Phone: 864-242-2033, Fax: 864-242-2034.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

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

1. Interior renovations and reconfigurations.
2. New metal stud framing, gypsum wall board, and acoustical tile ceilings.
3. New interior finishes, carpet and rubber base.

4. Wood doors and hardware.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 WORK UNDER SEPARATE CONTRACTS

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

1.5 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by the owner, the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated by the owner. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to lobbies and rooms indicated. Staging areas will be coordinated with the Campus Facilities staff.

2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

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

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00a.m. to 5:00 p.m., Monday through Friday, unless otherwise coordinated with Owner.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than two days in advance of proposed disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

1.8 BACKGROUND CHECKS

- A. Conduct criminal background investigations of individuals working on Owner's property.
- B. As a minimum, obtain a complete South Carolina statewide criminal background investigation, covering a period for the last 7 years, for individuals and employees performing Work or services for entities such as subcontractors, sub-sub-contractors, and consultants who will perform Work or a service on this Project. In the event that the individual being investigated is from out of state, broaden the investigation to include their home state, as well as the state of South Carolina as outlined above.

Obtain information from a company recognized by local law enforcement agency as qualified to do so. Costs associated with these criminal background checks are the responsibility of the Contractor.

- C. The Contractor shall be responsible and liable for the conduct and actions of its employees and individuals working under it.
- D. An individual with the following criminal convictions or pending charges will not be permitted on Owner's Project or property.
 - 1. Rape
 - 2. Child Molestation or Abuse
 - 3. Sexually Oriented Crime
 - 4. Drugs: Felony use, possession or distribution.
- D. An individual with a prior conviction or pending charges contained in the aforementioned list shall not be permitted on the Project Site or the Owner's property.
- E. The Owner may, at any time, request verification of criminal background investigation for an employee or subcontractor on Owner's property.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina
Project No. H29-I344

Project No. 014007.01
September 19, 2014
m c m i l l a n | p a z d a n | s m i t h

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. AIA A701 Instructions To Bidders
 - 2. 00201-0SE Standard Supplemental Instructions to Bidders; Section 3.3 – Substitutions. Use USDA SU
 - 3. Division 01 Section "References" specifies the applicability of industry standards to products specified.
 - 4. Division 01 Section "Submittal Procedures" specifies requirements for submitting the Contractor's construction schedule and the Submittal Schedule.
 - 5. Division 01 Section "Product Requirements" specifies requirements governing the Contractor's selection of products and product options.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling substitution requests, that do to extenuating circumstances as determined collectively by the Owner and the Architect, require a substitution to be made after award of the Contract. Examples of extenuating circumstances include, specified product is no longer manufactured or available, change in Project scope or design renders the specified product unusable. Failure to account for adequate ordering lead time does not constitute extenuating circumstances.
 - 1. Submittals shall comply with provisions and requirements of the Instructions To Bidders.
 - 2. Substituting products and manufacturers after Contract Execution is allowed when extenuating circumstances arise that require consideration of requesting substitutes for specified products.
 - 3. Substitute product shall be consistent with, comply with and meet the intent of the Contract Documents and shall not increase Contract sum or Contract time.

1.3 DEFINITIONS

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

- B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor. The following are not considered to be requests for substitutions:
1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
 2. Revisions to the Contract Documents requested by the Owner or Architect.
 3. Specified options of products and construction methods included in the Contract Documents.
 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. Substitution Request Submittal: Submit 3 copies of request for consideration, using the Substitution Request Form in Division 00 43 25 of Project Manual.
1. Timing: The Architect will consider requests for substitution after commencement of the Work if the request complies with requirements specified in this Project Manual.
 2. Requests received may be considered or rejected at the discretion of the Architect.
 3. Performance Criteria: Meet or exceed the minimum performance criteria called for in the Specifications and those published by the manufacturer of the specified item even if they are not specifically mentioned in the Specifications. Submittals not complying with this provision will be considered incomplete, unacceptable, and will not be reviewed.
 4. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Identify the product or the fabrication or installation method to be replaced. Include related Specification Section and Drawing numbers.
 - b. Statement indicating why specified material or product cannot be provided.
 - c. 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.
 - d. 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, necessary to accommodate proposed substitution.
 - e. Product data: Manufacturer's published description, capabilities, operating and performance parameters, options, accessories.
 - f. Performance Criteria: Detailed comparison of significant qualities of proposed substitute with those of the Work specified. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated. Prepare supporting data in tabular

- form showing the submitted criteria next to the each specified performance criteria.
- g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 1) Reports shall be based on same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Samples, where applicable or requested.
 - j. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - k. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - l. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents and is appropriate for the applications indicated.
 - m. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure to produce indicated results.
5. Products of manufacturers other than those specified may be acceptable, however, manufacturers capable of providing specified products shall not, for convenience of their normal production methods, vary from the specified product.
6. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.
- a. Form of Acceptance: Change Order.
 - b. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Conditions: The Architect will consider the Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.

1. The request complies with all of the following conditions:

- a. Extensive revisions to the Contract Documents are not required.
 - b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - c. Requested substitution is compatible with other portions of the Work.
 - d. Requested substitution has been coordinated with other portions of the Work.
 - e. Requested substitution provides specified warranty.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. 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 contractors involved.
 - h. Requested substitution will not adversely affect Contractor's construction schedule.
 - i. The request is timely, fully documented, and properly submitted, and
2. The request complies with one of the following conditions:
- a. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
 - b. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
 - c. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
 - d. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - e. The specified product or method of construction cannot be provided in a manner compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
 - f. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
 - g. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
3. The Architect will not consider substitutions for materials not ordered properly or when the ordering was not adjusted for lead time. Where a specified product or material cannot be delivered in time for reasons beyond the control of the Contractor, submit the following with the Request For substitution. Requests without the following information will be denied:

- a. Statement from the supplier that the specified products or materials cannot be provided in sufficient time to be incorporated in to the Work.
 - b. Statement from the supplier as to the normal lead time required for the specified products or materials and that this lead is common knowledge in the industry.
 - c. Statement from the supplier that the specified products or materials were ordered within the normal lead-time. If the specified products or materials were not ordered within the normal lead time, provide a statement from the supplier as to the date the Contractor initially inquired about the specified products or materials, the date the order was placed by the Contractor, and the date the order was received by the supplier.
- B. Final approval of the substitute shall be determined at final completion of the Project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in removal of the substitute and installation of approved product at Contractor's expense.
- C. Unapproved Products:
1. Product, material, component, or system that is not listed in the Specifications or was not approved by addendum during the Bidding Phase and is installed on this Project without the written approval of the Architect may, at the Architect's discretion, be subject to removal and replacement with a specified product, material, component, or system. Costs, including Project delays, the Architect's expenses, additional testing/inspection, associated with this removal and replacement shall be at the Contractor's expense.
 2. Shop drawings: Submitting unapproved products, materials, components, or systems on shop drawings is not an acceptable approval procedure. The Contractor's submittal and the Architect's acceptance of shop drawings, product data, or samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval. Products, materials, components, or systems that were not previously approved by the Architect and are submitted on the shop drawings are also subject to removal at the Contractor's expense even though the shop drawing containing an unapproved product, material, component, or system has been approved by the Architect.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Minor changes in the Work are defined as instructions or interpretations that do not affect the Contract Sum or Contract Time.
- B. The Architect will have the authority to issue supplemental instructions authorizing Minor Changes in the Work, and will do so on AIA Document G710, "Architect's Supplemental Instructions".

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 15 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.

- B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 7. Work Change Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on State Form SE-480.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Architect or Construction Manager may issue a Work Change Directive on AIA Document G714. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Work 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 Work Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina
Project No. H29-I344

Project No. 014007.01
November 24, 2014
mcmillan | pazdan | smith

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. See AIA Document A201 Article 9 and OSE Form 00811 Standard Supplementary Conditions.
- C. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals schedule.
 - c. Contractor's construction schedule.
 - d. List of subcontractors.
 - e. Schedule of allowances.
 - f. Schedule of alternates.
 - g. List of products.
 - h. List of principal suppliers and fabricators.
 - 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 Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.

- e. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 6. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager 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. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 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.
 1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made. Submit schedule with Application for Payment, regardless of whether revised or not.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 3. Submit copies of invoices for each item of material/equipment listed in the Application For Payment. If material/equipment is stored off-site, submit certificate of insurance to substantiate that the materials/equipment are stored in a bonded warehouse.
- E. Transmittal: Submit one electronic copy (PDF) and three signed and notarized original copies of each Application for Payment to Architect/Construction Manager 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 entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. Waiver Forms: Submit executed waivers of lien on forms 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. Contractor's construction schedule (preliminary if not final).
 4. Schedule of unit prices.
 5. Submittal schedule (preliminary if not final).
 6. List of Contractor's staff assignments.
 7. List of Contractor's principal consultants.
 8. Certificates of insurance and insurance policies.
 9. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made. Submit schedule with Application for Payment, regardless of whether revised or not.
 10. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 11. Submit copies of invoices for each item of material/equipment listed in the Application For Payment. If material/equipment is stored off-site, submit certificate of insurance to substantiate that the materials/equipment are stored in a bonded warehouse.
- H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.

4. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707-1994, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Requests for Information (RFIs).
 - 2. Project meetings.

1.2 DEFINITIONS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1.4 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction 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.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.

8. Startup and adjustment of systems.

1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1.6 SUBMITTALS

- A. Submittals schedule: Submit 3 copies of schedule. Arrange the following information in a tabular format:
 1. Scheduled date for first submittal.
 2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor.
 5. Description of the Work covered.
 6. Scheduled date for Architect's final release or approval.
- B. Preliminary construction schedule: Submit 2 opaque copies.
 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- C. Contractor's construction schedule: Submit 2 opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
 1. Submit an electronic copy of schedule, using Microsoft software, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- D. Contractor's Statement of Responsibility: As required in IBC, Section 1706.
- E. Field Condition Reports: Submit 2 copies at time of discovery of differing conditions.
- F. Special Reports: Submit 2 copies at time of unusual event.
- G. Coordination Drawings: Prepare Coordination Drawings for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
 1. Content: 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.
2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 3. Number of Copies: Submit 1 opaque and 1 electronic pdf copy of each submittal. Architect will return 1 copy.
 - a. Where Coordination Drawings are required for operation and maintenance manuals, mark up and retain 1 returned copy as a Project Record Drawing.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
- C. RFI Forms: AIA Document G716.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 2. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. 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.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.

- e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
2. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at regular intervals.
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. Revise "Agenda" Subparagraph below to suit Project.
 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.
 3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS

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 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.
 3. Indicate the following:

- a. Scheduled date for the first submittal.
 - b. Related Section number.
 - c. Submittal category (shop drawings, product data, or samples).
 - d. Name of the subcontractor.
 - e. Description of the part of the Work covered.
 - f. Scheduled date for resubmittal.
 - g. Scheduled date for the Architect's final release or approval.
4. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittals schedule.
 4. Startup and Testing Time: Include not less than 15 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.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 7. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall Project schedule.
- G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules and works with currently available Windows operating system.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Daily construction reports.
 - 3. Field condition reports.

1.2 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.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

1.3 SUBMITTALS

- A. Format for Submittals: One paper copy.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. Field Condition Reports: Submit at time of discovery of differing conditions.

1.4 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, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each 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. Startup and Testing Time: Include not less than 15 days for startup and testing.
 3. Final Acceptance: Indicate completion in advance of date established for Final Acceptance, and allow time for Architect's administrative procedures.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. 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. Use of premises restrictions.
 - e. Provisions for future construction.
 - f. Seasonal variations.
 - g. Environmental control.
 5. Work Stages: Indicate important stages of construction for each major portion of the Work.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, and final acceptance.

1. Notify Architect and Owner 48 hours prior to planned milestone inspection.

2.3 REPORTS

- A. Construction Reports: Prepare a weekly construction report recording the following information concerning events at Project site:
 1. List of subcontractors at Project site.
 2. Meetings and significant decisions.
 3. Change Orders received and implemented.
 4. Construction Change Directives received and implemented.
 5. Services connected and disconnected.
 6. Equipment or system tests and startups.
 7. Final Acceptance authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
- 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.

END OF SECTION 01 32 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Submittal procedures.
 - 2. Action submittals.
 - 3. Information submittals.
 - 4. Delegated design.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes, for submitting schedules and reports, including Contractor's Construction and Submittals Schedules, construction photographs and Coordination Drawings.
 - 3. Division 01 Section "Quality Requirements" for submitting test and inspection reports and mockup requirements.
 - 4. Division 01 Section "Closeout Procedures" for submitting warranties, Record Drawings and Record product data operation and maintenance manuals and demonstration of equipment and training of Owner's personnel.
 - 5. Division 01 Section "References" for permits, certifications and similar documents.
 - 6. Divisions 02 through 33 Sections for specific requirements for submittals in those Sections.

1.3 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 responsive action. Submittals may be rejected for not complying with requirements.
- C. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials, used to establish the standard by which the Work will be judged.

- D. Mockups: Full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.4 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 each submittal with the applicable specification by clearly indicating, on each copy the submittal, the appropriate drawing number, specification number, and the specific product, material, equipment, or component that is applicable to the submittal. Submittals without this information will not be reviewed.
 - 3. 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 01 Section "Project Management and Coordination" 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. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 - a. Products in Specification Divisions 21 through 33.
 - 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 21 days for review of each submittal. Submittal will be returned to Architect, before being returned to Contractor.
 - a. Products in Specification Divisions 21 through 33.

- 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 Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references.
 - k. Location(s) where product is to be installed.
 - l. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise specifically 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 in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- 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. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.

- g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references.
 - j. Transmittal number, numbered consecutively.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
 2. 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 "No corrections noted".
 - 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 "No corrections noted" taken by Architect.
- 1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES
- A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
 1. Complete the attached *AIA Document C106-2007 Digital Data Licensing Agreement* for CADD/Electronic File Transfer located at the end of this Section of the Specifications at the time files and documents are being requested on electronic media. Files on electronic media will not be delivered to the Contractor until receipt of this agreement.
 2. Architect will charge a \$50 per sheet service fee.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Submit electronic submittals directly to extranet specifically established for Project.

- B. Product data: Collect information into a single submittal for each element of construction and type of product or equipment. Product data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
 1. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Material Safety Data Sheets (MSDS).
 - e. Standard color charts.
 - f. Manufacturer's catalog cuts.
 - g. Wiring diagrams showing factory-installed wiring.
 - h. Printed performance curves.
 - i. Operational range diagrams.
 - j. Mill reports.
 - k. Standard product operation and maintenance manuals.
 - l. Compliance with specified referenced standards.
 - m. Testing by recognized testing agency.
 - n. Application of testing agency labels and seals.
 - o. Notation of coordination requirements.
 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. Where printed product data includes information on several products that are not required, mark copies to indicate the applicable information.
 4. Submit product data before or concurrent with Samples.
 5. Number of Copies: Submit 4 copies of product data, unless otherwise indicated. Architect will return 3 copies. Mark up and retain one returned copy as a Project Record Document.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
 6. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until a copy of product data is in the Installer's possession.
 - b. Do not permit use of unmarked copies of product data in connection with construction.

- 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. Highlight,

encircle, or otherwise indicate deviations from the Contract Documents. Standard information prepared without specific reference to the Project is not a shop drawing.

1. Preparation: Fully illustrate requirements in the Contract Documents. 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. Sheets in a set must be the same size.
 3. Number of Copies: Submit 1 opaque (bond) copy and 1 electronic pdf copy of each submittal. Architect will return 1 opaque and 1 electronic pdf copy. Mark up and retain one returned copy as a Project Record Drawing.
 4. Do not use shop drawings without an appropriate final stamp indicating action taken.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

- a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit 1 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit 3 sets of Samples. Architect will retain 1 Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 3 sets of paired units that show approximate limits of variations.
- E. 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 3 copies of product schedule or list, unless otherwise indicated. Architect will return 2 copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
- F. Contractor's construction Schedule: Comply with requirements specified in Division 01 Section "Project Management and Coordination".

- G. Submittals Schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".
- H. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- J. 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. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references covered by subcontract.
 - 4. Number of Copies: Submit 3 copies of subcontractor list, unless otherwise indicated. Architect will return 2 copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
- K. LEED Submittals: Comply with requirements specified in Division 01 Section "Sustainable Design Requirements."
 - 1. Number of Copies: Submit 3 copies of LEED submittals, unless otherwise indicated.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit 2 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. Have certificates and certifications signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's construction schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".
- D. 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.

- E. **Welding Certificates:** Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. 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 in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. **Manufacturer Certificates:** Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. **Product Certificates:** Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. **Material Certificates:** Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. **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 in the Contract Documents.
- K. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. **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. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- M. **Schedule of Tests and Inspections:** Comply with requirements specified in Division 01 Section "Quality Requirements."
- N. **Preconstruction Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. **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.

- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."
- R. 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.
- S. 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. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- U. 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.

- V. Construction Photographs: Comply with requirements specified in Division 01 Section "Project Management and Coordination".

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, as follows:
 - 1. No corrections noted
 - 2. Make corrections noted

3. Submit 1 corrected copy for file
 4. Revise and resubmit
 5. Rejected – see remarks
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00



AIA[®] Document C106[™] – 2007

Digital Data Licensing Agreement

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

BETWEEN the Party transmitting Digital Data ("Transmitting Party"):
(Name, address and contact information, including electronic addresses)

McMillan Pazdan Smith Architecture
200 E Broad Street, Suite 300
Greenville, SC 29601

and the Party receiving the Digital Data ("Receiving Party"):
(Name, address and contact information, including electronic addresses)

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

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina

In consideration of the following promises exchanged, the Parties agree as follows:

ADDITIONS AND DELETIONS:

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

Init.

TABLE OF ARTICLES

- 1 GENERAL PROVISIONS
- 2 TRANSMISSION OF DIGITAL DATA
- 3 LICENSE CONDITIONS
- 4 LICENSING FEE OR OTHER COMPENSATION

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 The purpose of this Agreement is to grant a license from the Transmitting Party to the Receiving Party for the Receiving Party's use of Digital Data on the Project, and to set forth the license terms.

§ 1.2 This Agreement is the entire and integrated agreement between the parties. Except as specifically set forth herein, this agreement does not create any other contractual relationship between the parties.

§ 1.3 Digital Data is defined as information, communications, drawings, or designs created or stored for the Project in digital form.

§ 1.3.1 Confidential Information is defined as Digital Data that the Transmitting Party has designated as confidential and clearly marked with an indication such as "Confidential" or "Business Proprietary."

ARTICLE 2 TRANSMISSION OF DIGITAL DATA

§ 2.1 The Transmitting Party grants the Receiving Party a nonexclusive limited license to use the Digital Data solely and exclusively to perform services or construction for the Project in accordance with the conditions set forth in Article 3.

§ 2.2 The transmission of Digital Data constitutes a warranty by the Transmitting Party to the Receiving Party that the Transmitting Party (1) is the copyright owner of the Digital Data, (2) has permission from the copyright owner to transmit the Digital Data and grant a license for its use on the Project, or (3) is authorized to transmit Confidential Information.

§ 2.3 The Transmitting Party retains its rights in the Digital Data. By transmitting the Digital Data, the Transmitting Party does not grant to the Receiving Party an assignment of those rights; nor does the Transmitting Party convey to the Receiving Party any right in the software used to generate the Digital Data.

§ 2.4 To the fullest extent permitted by law, the Receiving Party shall indemnify and defend the Transmitting Party from and against all claims arising from or related to the Receiving Party's modification to, or unlicensed use of, the Digital Data.

§ 2.5 The Receiving Party agrees to keep Confidential Information strictly confidential and not to disclose it to any other person except to (1) its employees, (2) those who need to know the content of the Confidential Information in order to perform services or construction solely and exclusively for the Project, or (3) its consultants and contractors whose contracts include similar restrictions on the use of Confidential Information.

ARTICLE 3 LICENSE CONDITIONS

§ 3.1 The parties agree to the following conditions on the limited license granted in Section 2.1:

(State below rights or restrictions applicable to the Receiving Party's use of the Digital Data, requirements for data format, transmission method or other conditions on data to be transmitted.)

ARTICLE 4 LICENSING FEE OR OTHER COMPENSATION

§ 4.1 The Receiving Party agrees to pay the Transmitting Party the following fee or other compensation for the Receiving Party's use of the Digital Data:

Init.

(State the fee, in dollars, or other method by which the Receiving Party will compensate the Transmitting Party for the Receiving Party's use of the Digital Data.)

This Agreement is entered into as of the day and year first written above and will terminate upon Substantial Completion of the Project, as that term is defined in AIA Document A201™–2007, General Conditions of the Contract for Construction, unless otherwise agreed by the parties and set forth below.

(Indicate when this Agreement will terminate, if other than the date of Substantial Completion.)

TRANSMITTING PARTY *(Signature)*

RECEIVING PARTY *(Signature)*

(Printed name and title)

(Printed name and title)

Init.

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SECTION 01 40 00 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 02 through 49 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 specifically 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 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.

1.4 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. 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. Record of temperature and weather 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.
- C. 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.

1.5 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 product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. 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.
- H. 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.
- 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 mockups when directed, unless otherwise indicated.
- J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 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 types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. 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 agencies 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 as specified in Division 01 Section "Submittal Procedures."
- 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 replaced Work that failed to comply with 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. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. 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 -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.
- H. Contractor shall maintain at the job office a record of all required tests that have been performed, clearly indicating the scope of work inspected and the date of approval or rejection.
- 1.7 SPECIAL TESTS AND INSPECTIONS
- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, 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 Final Acceptance, 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 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 2. Comply with the Contract Document requirements for Section 01 73 29 - Cutting and Patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
 - 8. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 9. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 10. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 11. AGA - American Gas Association; www.aga.org.
 - 12. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 14. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 15. AIA - American Institute of Architects (The); www.aia.org.
 - 16. AISC - American Institute of Steel Construction; www.aisc.org.
 - 17. AISI - American Iron and Steel Institute; www.steel.org.
 - 18. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 - 19. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 - 20. ANSI - American National Standards Institute; www.ansi.org.
 - 21. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 - 22. APA - APA - The Engineered Wood Association; www.apawood.org.
 - 23. APA - Architectural Precast Association; www.archprecast.org.
 - 24. API - American Petroleum Institute; www.api.org.
 - 25. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
 - 26. ARI - American Refrigeration Institute; (See AHRI).
 - 27. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
 - 28. ASCE - American Society of Civil Engineers; www.asce.org.
 - 29. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
 - 30. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.

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

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

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

150. NSF - NSF International; (National Sanitation Foundation International); www.nsf.org.
151. NSPE - National Society of Professional Engineers; www.nspe.org.
152. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
153. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
154. NWFA - National Wood Flooring Association; www.nwfa.org.
155. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
156. PDI - Plumbing & Drainage Institute; www.pdionline.org.
157. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
158. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
159. RFCI - Resilient Floor Covering Institute; www.rfci.com.
160. RIS - Redwood Inspection Service; www.redwoodinspection.com.
161. SAE - SAE International; (Society of Automotive Engineers); www.sae.org.
162. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
163. SDI - Steel Deck Institute; www.sdi.org.
164. SDI - Steel Door Institute; www.steeldoor.org.
165. SEFA - Scientific Equipment and Furniture Association; www.sefalabs.com.
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
167. SIA - Security Industry Association; www.siaonline.org.
168. SJI - Steel Joist Institute; www.steeljoist.org.
169. SMA - Screen Manufacturers Association; www.smainfo.org.
170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
171. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
172. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
173. SPIB - Southern Pine Inspection Bureau; www.spib.org.
174. SPRI - Single Ply Roofing Industry; www.spri.org.
175. SRCC - Solar Rating and Certification Corporation; www.solar-rating.org.
176. SSINA - Specialty Steel Industry of North America; www.ssina.com.
177. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
178. STI - Steel Tank Institute; www.steeltank.com.
179. SWI - Steel Window Institute; www.steelwindows.com.
180. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
181. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
182. TCNA - Tile Council of North America, Inc.; (Formerly: Tile Council of America); www.tileusa.com.
183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
184. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
185. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
186. TMS - The Masonry Society; www.masonrysociety.org.
187. TPI - Truss Plate Institute; www.tpinst.org.
188. TPI - Turfgrass Producers International; www.turfgrassod.org.
189. TRI - Tile Roofing Institute; www.tilerroofing.org.
190. UBC - Uniform Building Code; (See ICC).

191. UL - Underwriters Laboratories Inc.; www.ul.com.
192. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
193. USAV - USA Volleyball; www.usavolleyball.org.
194. USGBC - U.S. Green Building Council; www.usgbc.org.
195. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
196. WASTEC - Waste Equipment Technology Association; www.wastec.org.
197. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
198. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
199. WDMA - Window & Door Manufacturers Association; www.wdma.com.
200. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); www.wicnet.org.
201. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
202. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
203. WPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

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

17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
 18. USP - U.S. Pharmacopeia; www.usp.org.
 19. USPS - United States Postal Service; www.usps.com.
- D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.
- E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Section:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's project manager, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: University Water from Owner's existing water system is available for use. Provide connections and extensions of services as required for construction operations with university's approval. And University must witness tap.
- C. Electric Power Service from Existing System: University Electric power from Owner's existing system is available for use. Provide connections and extensions of services as required for construction operations with University's approval only.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel. Contractor to provide security fence for construction dumpster if required at contractor cost.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading - if needed. Coordinate with University project manager if office is required.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations - if needed. Coordinate with University project manager if allowed.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide fans and equipment needed for air circulation and heating and cooling.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures."

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- E. 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 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.
- F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
 - 1. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 - 2. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.
- I. Electronic Communication Service: Provide a desktop or laptop computer in the primary field office adequate for use by field Supervisor to maintain electronic communications. Equip computer with not less than the following:
 - 1. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these 3 functions.
 - 2. Internet Service: Broadband modem, router and ISP, equipped with hardware firewall, providing minimum 384 Kbps upload and 1 Mbps download speeds at each computer.
 - 3. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing and spam protection in a combined application.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Provide temporary and Use designated areas of Owner's existing parking areas for construction personnel. Coordinate with University Project manager for parking limits.
- D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touchup signs so they are legible at all times.
- E. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- I. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- B. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and 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. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- G. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION 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. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
 4. Completed List: Within 60 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.
 5. 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.
 6. Certify that products, material, components, equipment, and systems, comply with the requirements specified on the Drawings, in this section and with Divisions 2 through 33.
- B. Product Substitution Requests: Refer to Division 1 Section "Substitution Procedures" for requirements and process.
- 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 8 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 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 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

- A. Source Limitations: To the extent possible, provide products of the same kind from a single source.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- C. Products with recycled content: Recycled content must be free of hazardous material contamination.
- D. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work.
 - 1. No available domestic product complies with the Contract Documents.
 - 2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.
- E. Comply with provisions of the Contract Documents including providing such entities that include, but are not limited to, the products, materials, equipment, components, or systems that were proposed at the time bids were received.
 - 1. Except for extenuating circumstances, as determined by the Architect, notification of not being able to meet the provisions of the Contract Documents will not be considered after receipt of bids. Comply with the Contract Documents at no increase in Contract Sum or Contract Time.
 - 2. Out Of Stock Items: Neither the Owner or the Architect will be responsible for the Contractor's failure to allow for adequate lead times to ensure delivery of products, materials, or equipment to prevent installation delays.
 - a. The Contractor shall be responsible for ordering, shipping, handling, storage, duty, fee, and costs applicable to ordering products, materials, and equipment for on-time installation.
 - b. If products, materials, or equipment are discontinued or are no longer available at the time they are ordered, the Contractor shall be responsible for costs incurred by the Architect and the Owner in selecting and approving a substitute

and for the cost differential between the originally specified product, material, or equipment and the selected substitute. The Owner and Architect reserve the right to select and approve substitutes.

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 and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. 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.
 - 2. 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.
 - 3. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.

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

- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
- B. Product Selection Procedures:
 - 1. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. General procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.

1.2 SUBMITTALS

- A. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of 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 underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. 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. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, 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 CSI Form 13.2A, "Request for Interpretation."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

3.5 MOISTURE CONTROL

- A. General: The Contractor shall be responsible to maintain the building free of mold and other conditions that may promote mold or may be interpreted as detrimental to Indoor Air Quality, including hiring and paying for applicable specialists or consultants, if necessary.
 - 1. The Contractor shall be responsible for coincidental damage related to moisture intrusion or accumulation related to the Contractor's failure to take the necessary precautions and preventive measure to prevent moisture intrusion and accumulation.
- B. At the time of Contract Execution, submit the following:
 - 1. Complete and detailed procedures that describe the following conditions:
 - a. Manufacturer's certification for listed materials or products that are normally used in the building shell and for which the manufacturer claims that moisture will not harm the material or product will not promote or support the growth of mold or mildew.

- b. Identification of moisture and mold on or in listed materials and products, whether being unloaded, staged, or in-place.
 - c. Protection of listed materials and products during staging, handling, and while in place.
 - d. Disposition of materials and products that are wet, show signs of having been wet, or have evidence of mold or mildew on arrival at the site or off-site staging/storage location.
 - e. Removal of materials or products that have been identified as being wet or having signs of mold or mildew.
- C. Fibrous and cellulose-base materials and products that become wet and are not dried within 24 hours can initiate and promote the growth of mold and mildew. Saturation of these materials is not necessary to initiate the mold cycle.
1. Detecting the presence of and preventing the spread of mold, mildew, other fungi, and their spores is of paramount importance during construction of this Project and after Owner occupancy. Procedures used to handle, stage, and install materials and products will impact and affect the growth of mold and mildew during construction and after Owner occupancy.
 2. Building materials and products that are prone to absorbing and retaining moisture include, but are not limited to, the following:
 - Concrete
 - Masonry
 - Drywall
 - Insulation
 - Casework
 - Fiberboard
 - Wood products such as flooring, doors, trim and finishes
 - Fabric items
 - Particleboard
 - Finish carpentry
 - Carpet
 - Acoustical ceiling tile
 - Furniture and drapery
 - Other cellulose, fibrous, or moisture absorbing materials and products
 - Material or product that may promote, encourage, or sustain mold or mildew growth or their spores.
 3. Where a manufacturer's requirements for ambient conditions (such as the HVAC operational and temperature and humidity stabilized at expected operating levels) exceed these requirements, the most stringent shall govern.
- D. Methods to prevent mold, mildew, other fungi, and their related spores include, but are not limited to, the following:
1. Establish and enforce effective construction sequencing throughout the Project to protect moisture sensitive listed products and materials from contamination. Keep materials dry during staging and after installation.

2. Erect the exterior cladding of the building shell as quickly as possible to protect internal components of building shell. Protect these components until the exterior finish is installed.
3. Monitor interior humidity levels, provide ventilation and temperature control during installation of systems that dissipate moisture such as plaster, sprayed fireproofing, concrete, and drywall finishing, especially during humid or wet weather conditions.
4. Do not install listed materials or products until the building is completely in the dry, exterior openings are closed and moisture producing operations are completed.
5. Take necessary precautions for moisture conditions/surfaces that may be concealed after constructions.
6. Immediately dry leaks, spills, or other moisture that has entered the structure or building shell.
7. Watch for signs of mold, mildew, and musty odors and take prompt remedial and preventative action at their first sign. Encapsulation is not an acceptable treatment.
8. Reject and remove wetted listed material or product:
 - a. That arrives on the job site wet or shows evidence of having been wet; it shall be considered defective.
 - b. If moisture has condensed on the inside of wrapping of listed materials and products, have the material tested. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination
 - c. That are installed prior to the building being in the dry or completing moisture producing operations. Replace with new materials at no additional expense to the Owner.
 - d. That show signs of mold, mildew, and musty odors, even if already installed. Applies also to porous products such as masonry. It is not acceptable to only clean surfaces to remove the mold, mildew, and musty odors.
 - e. That become wet and have an unacceptable moisture level or may produce or encourage the growth of mold. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination.
9. Comply with the provisions for Temporary Use Of Owner's HVAC Equipment, found in Division 1 Section "Temporary Facilities and Controls".
10. Keep HVAC ducts sealed when the system is not operating. If use is intermittent, secure the system prior to performing dust-producing operations. Keep them free of moisture. Keep condensation pans and lines operational and unclogged. Ensure that other water sources are not draining into condensation pans.
11. Prior to Substantial Completion, contract with an independent licensed and professional testing agency, acceptable to the Owner and Architect, which specializes in indoor air quality.
 - a. Take recommended and required corrective action to bring unacceptable conditions to an acceptable level, as determined by additional air sampling, at no additional cost to the Owner. This testing agency shall be responsible for, but not limited to the following:
 - 1) Sampling air of all spaces and analyzing for mold and mold spores.

- 2) Sending copies of reports to the Owner, the Architect, and the Contractor. Show actual levels of each space tested and denote areas that are not within acceptable limits.
 - 3) Submitting recommendations to bring unacceptable areas to acceptable levels.
 - 4) Acceptable levels/conditions shall be determined by comparing samples of indoor air with samples of background and outside air. The mold content of indoor air samples shall not exceed that of the background and outdoor air samples. Additionally, the indoor air samples shall not contain traces of mold that would not ordinarily be found in the outside air.
- E. At Substantial Completion, execute a Moisture Control Certification, located in Division 00 of the Project Manual.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Final Acceptance.
- 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 and to comply with standard practice and accommodate movement in building.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- 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, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Final Acceptance.
- 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 Section 01 40 00 - 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 Final Acceptance.
- 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 Section – 01 73 29 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. Damaged surfaces that cannot be repaired to the Architects satisfaction shall be replaced with new material at no additional cost.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.

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 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 15 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 3. Products: List products to be used and firms or entities that will perform the Work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
 6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
 1. Primary operational systems and equipment.
 2. Air or smoke barriers.
 3. Fire-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. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 1. If possible retain the original Installer or fabricator to cut and patch the exposed Work. If it is impossible to engage the original Installer or fabricator, engage another recognized experienced and specialized firm.
 2. Comply with the recommendations and instructions of the manufacturer of the Work to be cut and patched and of the materials being used for cutting and patching.
 3. Incorporate materials and procedures of a quality not less than used in the original construction, recommended by the manufacture of the Work being cut and patched, and acceptable to the Architect.

4. Match the finish, profile, and dimensions, and shall not compromise design, function, operation, and performance of the Work that was cut and patched.
 5. Where cutting and patching is necessary on work that is under warranty, cutting and patching shall not compromise, void or reduce the conditions and provisions of warranties or insurance that are in effect.
 6. Where cutting and patching may compromise the conditions and provisions of a warranty or insurance, notify the Architect prior to starting cutting or patching operations.
 7. The Architect reserves the right to accept and approve cutting and patching. Acceptance and approval shall be based on overall aesthetics, performance, function, and operation.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- 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/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or 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. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

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 rehang in-place ceilings to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Masonry Infill

1. Brick: ASTM C 216, Grade: SW, Type: FBS, Compressive Strength: 6000 psi. Match size, color, shape, and texture of existing adjoining brick.
2. Mortar: ASTM C270, Proportion Specification, for job-mixed mortar and ASTM C 1142 for ready-mixed mortar. Type S. Provide with WR Grace Dry Block integral moisture repellent for exterior work. Match color, texture, and tooling of existing adjoining mortar.
3. Reinforcing and Ties: Size and type as required by BIA for intended application. Hot dipped galvanized.
4. Lay up masonry infill where indicated on the Drawings.
5. Match adjacent masonry coursing, pattern, and joint work.
6. Make tie-ins neat and toothed into existing coursing. Flush tie-ins are not acceptable.

3.4 CLEANING

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

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Economics Department Renovations
Aiken, South Carolina
Project No. H29-I344

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END OF SECTION 01 73 29

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 2. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 3. Section 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.

1.2 ACTION SUBMITTALS

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

1.3 CLOSEOUT SUBMITTALS

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

1.4 MAINTENANCE MATERIAL SUBMITTALS

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

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section.
 - 5. Submit test/adjust/balance records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 6. Advise Owner of changeover in heat and other utilities.
 - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 7 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect, Facilities Manager and OSE representative 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.

1.6 FINAL COMPLETION PROCEDURES

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect [and Construction Manager] will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. 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, three-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.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

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

- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- b. Remove tools, construction equipment, machinery, and surplus material from Project site.
- c. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
- d. Sweep concrete floors broom clean in unoccupied spaces.
- e. Vacuum carpet and similar soft surfaces, removing debris and excess nap..
- f. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- g. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- h. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
 1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for preparing operation and maintenance manuals, including:
 - 1. Emergency manuals.
 - 2. Operation manuals for systems, subsystems, and equipment.
 - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.

1.2 SUBMITTALS

- A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit 2 copies of each corrected manual within 10 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

- A. Coordinate maintenance and operation training materials with Owner.
- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- C. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Architect.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.

- D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire flood gas leak water leak power failure water outage equipment failure and chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

- D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.

2. Manufacturer's name.
 3. Color, pattern, and texture.
 4. Material and chemical composition.
 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures:
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

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

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- F. Comply with Section 01 77 00 - Closeout Procedures for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections:
 - 1. Division 01 Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 2. Divisions 02 through 23 Sections for specific requirements for project record documents of the Work in those Sections.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set of marked-up record prints.
- B. Record Prints: Maintain one set of marked-up paper copies 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 provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it.
 - c. Record and check the markup before enclosing concealed installations.
 - 2. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.
 - 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

1.3 RECORD PRODUCT DATA

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

1.4 MISCELLANEOUS RECORD SUBMITTALS

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

PART 2 - EXECUTION

2.1 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 and Construction Manager's reference during normal working hours.

END OF SECTION 01 78 39

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.2 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1.3 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section – 01 40 00 Quality Requirements, experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training.
- D. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
1. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
 2. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
 3. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
 4. Operations: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
 5. Adjustments: Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
 6. Troubleshooting: Include diagnostic instructions and test and inspection procedures.
 7. Maintenance: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools.
 8. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
1. Owner will furnish qualified personal to describe Owner's intended operations.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
1. Schedule training with Owner with at least seven days' advance notice.

- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

END OF SECTION 01 79 00

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Predemolition Photographs or Video: Submit before Work begins.

1.5 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. 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 suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner 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.

1.6 WARRANTY

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. 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.
- D. Perform an engineering survey of 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 building demolition operations.
- E. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
 - 1. Comply with requirements specified in Section 013233 "Photographic Documentation."

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: 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, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, 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. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden

- space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 5. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- B. Reuse of Building Elements: Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.
- 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 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. 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 elevated 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 Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

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

END OF SECTION 02 41 19

SECTION 03 54 16 - HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings (patchwork).

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 INFORMATIONAL SUBMITTALS

- A. Product certificates.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.

PART 2 - PRODUCTS

2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

- A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/4 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. ARDEX GmbH.
 - b. BASF Construction Chemicals - Building Systems.
 - c. Bonsal American, an Oldcastle company.
 - d. Dayton Superior.
 - e. Lambert Corporation.

- f. US SPEC, Division of US MIX Company.
 - 2. Cement Binder: ASTM C 150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C 219.
 - 3. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
 - 4. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer, formulated for use with underlayment when applied to substrate and conditions indicated.
- B. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
 - 1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- C. Water: Potable and at a temperature of not more than 70 deg F.
- D. Reinforcement: For underlayment applied to wood substrates, provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.
- E. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.
 - 1. Primer shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
 - 1. Treat nonmoving substrate cracks to prevent cracks from telegraphing (reflecting) through underlayment.
 - 2. Fill substrate voids to prevent underlayment from leaking.
- B. Concrete Substrates: Mechanically remove laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
- C. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond, and prepare surfaces.
- D. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment.

3.2 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
 - 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
 - 2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
 - 3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface.
 - 1. Apply a final layer without aggregate to product surface.
 - 2. Feather edges to match adjacent floor elevations.
- D. Cure underlayment. Prevent contamination during application and curing processes.
- E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

END OF SECTION 03 54 16

SECTION 06 10 53 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood blocking and nailers.
2. Wood furring.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.3 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
1. Preservative-treated wood.
 2. Fire-retardant-treated wood.
 3. Power-driven fasteners.

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. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
 3. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- 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 all miscellaneous carpentry unless otherwise indicated.
 - 1. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
 - 1. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- C. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Framing for raised platforms.
 - 2. Concealed blocking.
 - 3. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade of any species.
- B. Other Framing: Construction or No. 2 grade and the following species:
 - 1. Southern pine; SPIB.

2. Douglas fir-larch; WCLIB or WWPA.
3. Mixed southern pine; SPIB.
4. Spruce-pine-fir; NLGA.
5. Douglas fir-south; WWPA.
6. Hem-fir; WCLIB or WWPA.

2.5 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. Furring.
 4. Grounds.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber of any species.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine, No. 2 grade; SPIB.
 2. Eastern softwoods, No. 2 Common grade; NELMA.
 3. Northern species, No. 2 No. 3 Common grade; NLGA.
 4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: DOC PS 1, Exterior, AC, in thickness indicated or, if not indicated, not less than nominal thickness.

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
1. 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.
- B. Power-Driven Fasteners: NES NER-272.
- C. Screws for Fastening to Metal Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit.
- B. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- E. Do not splice structural members between supports unless otherwise indicated.
- F. Comply with AWWA M4 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.

3.2 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 53

SECTION 07 21 00 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 1. Insulation under slabs-on-grade.
 2. Foundation wall insulation (supporting backfill).
 3. Building insulation in batt form.
 4. Cavity wall insulation.
 5. Sound attenuation

1.3 DEFINITIONS

- A. Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "r-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.
- B. Product data for each type of insulation product specified.
- C. Samples for verification purposes in full-size units of each type of exposed insulation indicated for each color specified.
- D. Product test reports from and based on tests performed by qualified independent testing laboratory evidencing compliance of insulation products with requirements including r-values (aged values for plastic foam insulations), fire performance characteristics, perm ratings, water absorption ratings, and other properties, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.
1. Surface Burning Characteristic: ASTM E 84.
 2. Fire Resistance Ratings: ASTM E 119.
 3. Combustion Characteristics: ASTM E 136.
- B. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- C. Substitute Requests For A Specified Entity
1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
 2. Where the Contract Documents list at least three entities (products, materials, components, systems, manufacturers, installers, methods, etc.), the Architect reserves the option to reject any and all requests for a substitute. Where the Contract Documents list only one entity without “Or equal” or similar language, substitutes will not be considered. Where the Contract Documents list less than 3 entities, substitutes may be reviewed and evaluated on an individual base.
 3. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
 4. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this

substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.

5. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
6. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.
7. The manufacturer’s published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
8. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:

- a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
9. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
- a. That the specifications have been read and are understood,
 - b. That the entity being submitted meets or exceeds all provisions of the specifications,
 - c. That all submitted information is true and accurate,
 - d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
 - e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

D. Substitute Requests For A Specified Entity

1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
2. Where the Contract Documents list at least three entities (products, materials, components, systems, manufacturers, installers, methods, etc.), the Architect reserves the option to reject any and all requests for a substitute. Where the Contract Documents list only one entity without "Or equal" or similar language, substitutes will not be considered. Where the Contract Documents list less than 3 entities, substitutes may be reviewed and evaluated on an individual base.

3. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
4. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
5. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
6. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.

7. The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
8. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:
 - a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
9. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
 - a. That the specifications have been read and are understood,
 - b. That the entity being submitted meets or exceeds all provisions of the specifications,
 - c. That all submitted information is true and accurate,
 - d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
 - e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection during installation.
- B. Protect plastic insulation as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time.
 - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.7 WARRANTY

- A. Foam insulation: Provide manufacturer's 15-year thermal insulation warranty stating that installed insulation will retain a minimum of 85 percent of original thermal value.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide insulation products of one of the following:
 - 1. Extruded Polystyrene Board Insulation:
 - a. DiversiFoam Products.
 - b. Dow: The Dow Chemical Company.
 - c. Green Guard by Pactiv
 - d. Owens Corning.

2.2 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
 - 1. Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.

B. Extruded Polystyrene Board Insulation: Rigid, cellular polystyrene thermal insulation with closed-cells and integral high density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578 for type indicated; with 5-year aged r values of 5.4 and 5 at 40 and 75 deg F, respectively; and as follows:

1. ASTM C578, Type IV, 1.6 pcf min. density, unless otherwise indicated.
2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 75 and 450, respectively.
3. Perimeter and Foundation:
 - a. Horizontal: Dow Styrofoam Scoreboard, square edge or equal.
 - b. Vertical: Dow Styrofoam Perimate with drainage grooves, square edge or equal
 - c. Insulation Tape: Heavy duty, reinforced, waterproof, and perm rating no greater than that of the insulation as recommended by the insulation manufacturer.
 - d. For Use Over Steel Studs: Where interior gypsum drywall does not extend to the roof deck and insulation is exposed to interior, provide Dow Thermax rigid insulation complying with ASTM 4880.
 - e. Tape: Dow 4-inch Butyl Weather tape.

C. Over Exterior Steel Studs and Sheathing: Extruded-polystyrene board insulation complying with ASTM C 578, **Type IV, 25-psi** minimum compressive strength; unfaced; fabricated with shiplap or channel edges and with one side having grooved drainage channels. Subject to compliance with requirements, provide products by Dow Chemical Company or a reviewed substitute:

1. Tape: Dow 4-inch Butyl Weather tape.

D. BATT INSULATION

1. Faced Mineral Fiber Blanket / Batt Insulation: Thermal insulation produced by combining glass or mineral fibers with thermosetting resins to comply with ASTM C 665. Insulation shall contain no added formaldehyde.
 - a. Faced Insulation: Type III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less); foil-scrim-kraft or foil-scrim-polyethylene vapor-retarder membrane on one face,
 - b. Unfaced Batt Insulation: Type I, blankets without facing.

2.3 SOUND ATTENUATION

A. Interior: Sound Attenuation Blanket, unfaced batt insulation complying with ASTM C665, Type 1 and with governing codes for intended application. Insulation shall contain no added formaldehyde.

- B. Exterior: Sound Silencer High Durability P.E.P.P., S.T.O.P. by Acoustical Surfaces or a reviewed substitute: Porous expanded polystyrene bead board, no fibers, moisture proof, mold and mildew resistant, suitable for exterior type. 2 inches thick.

2.4 AUXILIARY INSULATING MATERIALS

- A. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation or mechanical anchors securely to substrates indicated without damaging or corroding either insulation, anchors, or substrates.
- B. Protection Board: select on of the following:
 - 1. Premolded extruded polystyrene 3/16 inch fanfold protection board.
 - 2. Premolded, semi-rigid asphalt/fiber composition board, 1/4 inch thick, formed under heat and pressure, standard sizes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions with Installer present, for compliance with requirements of the Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removal of projections that might puncture vapor retarders.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.
- B. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
- C. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

- D. Install faced insulation with facer to warm side
- E. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
- F. Set vapor-retarder-faced units with vapor retarder to warm side of construction, unless otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
 - 1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to surrounding construction to ensure airtight installation.

3.4 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION

- A. On vertical surfaces, set units in adhesive applied in accordance with manufacturer's instructions. Use type of adhesive recommended by manufacturer of insulation.
- B. Protect below-grade insulation on vertical surfaces (from damage during back-filling) by application of protection board. Set in adhesive in accordance with recommendations of manufacturer of insulation.
- C. Protect top surface of horizontal insulation (from damage during concrete work) by application of protection board.

3.5 INSTALLATION OF CAVITY-WALL INSULATION

- A. Over Sheathing
 - 1. Apply adhesive in full coverage edge-to-edge and corner-to-corner over entire surface of insulation in thickness recommended by the insulation manufacturer to ensure a permanent bond to the substrate. Do not apply adhesive in dabs or strips.
 - 2. Fit courses of insulation between wall ties and other confining obstructions in cavity snugly, with edges butted tightly both ways. Press units firmly against sheathing or other construction as shown. Ensure that entire surface of insulation edge-to-edge and corner-to-corner is in full permanent contact with the sheathing.
 - 3. Lay units with T & G joints parallel to grade and lapped to shed water.
 - 4. Form joints as recommended by the insulation manufacturer for easy taping.
 - 5. Fill all cracks and open gaps in insulation with crack sealer compatible with insulation and recommended by the insulation manufacturer.
 - 6. If sheathing does not have an air or vapor barrier applied, tape all joints as recommended by the insulation manufacturer. Apply tape smoothly and evenly, without cracks, creases, wrinkles, fishmouths, etc. Where tape does not fit neatly around masonry anchors, cut tape as required to seal around anchor.

3.6 BATT INSULATION

- A. Install blankets in cavities formed by framing members according to the following requirements:
 - 1. Use blanket widths and lengths that fill cavities formed by framing members. Where more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - 2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. For wood-framed construction with faced blankets having stapling flanges, position insulation to produce 1/2-inch continuous air space between insulation facing and inner surface of concealing finish material, unless otherwise indicated. Secure insulation by inset, stapling flanges to sides of framing members.

3.7 LOOSE FIBER INSULATION

- A. Stuff glass fiber loose fill insulation into miscellaneous voids and cavity spaces where shown. Compact to approximately 40 percent of normal maximum volume (to a density of approximately 2.5 pcf).

3.8 SOUND ATTENUATION

- A. Interior: (Interior Wall and Ceiling)
 - 1. Walls
 - a. Use blanket widths and lengths that fill cavities formed by interior wall framing members. Where more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - b. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 2. Ceilings:
 - a. Lay blankets over suspended ceiling system full length with tightly butted joints.
 - b. Work insulation around suspension system and structural framing.

3.9 SPANDREL GLASS

- A. Install glass fiber board insulation behind spandrel glass where indicated on the Drawings according to manufacturer's instructions.
- B. Hold insulation in place with metal clips or straps or integral pockets within window frames spaced at intervals recommended by the insulation manufacturer to hold

insulation boards in place without touching spandrel glass. Maintain cavity width between insulation and glass.

- C. Brace board insulation where it comes in contact with safing insulation to prevent bowing from pressure from safing insulation.

3.10 PROTECTION

- A. General: Protect installed insulation and vapor retarders from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00

SECTION 07 84 00 - FIRESTOPPING

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. All firestopping shall be performed only by the same experienced specialty entity having the specified qualifications. Fire stopping shall not be performed by the various building disciplines, such as mechanical, HVAC, plumbing, electrical, etc.
- B. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
 - 1. Floors
 - 2. Roofs
 - 3. Walls and partitions
 - 4. Smoke barriers
 - 5. Construction enclosing compartmentalized areas
 - 6. Construction Gap Fire-Stopping:
 - a. Fire stopping at construction gaps between edges of floor slabs and exterior wall construction.
 - b. Fire stopping at construction gaps between tops of partitions and underside of structural systems.
 - c. Fire stopping at construction gaps between tops of partitions and underside of ceilings or ceiling assemblies.
 - d. Fire stopping control joints in masonry partitions.
- C. Related Sections include the following:
 - 1. Division 23 Sections specifying duct and piping penetrations.
 - 2. Division 26 Sections specifying cable and conduit penetrations.

1.3 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.

1. Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.
 2. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
 3. Fire-resistance-rated floor assemblies.
 4. Fire-resistance-rated roof assemblies.
- B. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- C. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 250, as determined per ASTM E 84.
- D. Fire-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems to maintain the intended UL construction rating, as determined per ASTM E 814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.
- E. Fire-Resistive Joint Sealants: Provide joint sealants that meet fire-resistance ratings indicated, as determined per ASTM E 2079, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

1.4 SUBMITTALS

- A. Product Data: For each type of through-penetration firestop system product indicated.
1. Identification Tags: Submit samples of identification tags that will be installed at each location.
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.

2. Here Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
 3. Submit the type fire stopping to be installed for each moisture and movement condition encountered.
- C. 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.
- D. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.
- E. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
1. An experienced specialty firestop contractor who has successfully completed penetration firestop systems similar in material, design, extent, and complexity to that indicated for this Project. Shall have completed a minimum of five projects of comparable size and complexity as this project within the last 3 years.
 2. Certified and licensed, as applicable, by the applicable governing authorities and be accredited for installation by FM Standard 4491 – Approval of Firestop Contractors or the UL Certified Firestop Contractor Program. Provide proof submitting name of accrediting agency (UL or FM), date of last inspection by accrediting agency, name of Designate Responsible Individual (DRI), and a copy of the Quality Manual.
 3. Be a current member in good standing of the Firestop Contractors International Association.
 4. Has in-place work that has resulted in construction with a record of successful in-service performance.
 5. Have the necessary experience, on-hand staff, and training to install manufacturer's products per specified requirements.
 6. A manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to an installer engaged by Contractor does not in itself confer qualification on buyer or installer.
- B. Fire Stopping Inspection
1. Qualifications of Fire stopping Inspector
 - a. Contractor shall contract with and pay for a qualified inspector with the following qualifications.
 - b. Shall not be related to the installer or general contractor in any way including business relationships including subsidiaries, distributors, manufacturers, representatives, etc.

- c. Shall comply with all provisions of ASTM E2174 and ASTM E2393
 - d. Shall have successfully passed the FM 4491 or the Firestop Designated Responsible Individual (DRI) examinations.
 2. Duties of the Inspector
 - a. Inspect all firestopping installation for compliance with requirements of local governing authorities and codes
 - b. Advise the installer of all noted deficiencies verbally at the time of observation and in writing within 24 hours. Also inform installer of locations requiring firestopping that were apparently missed.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
 - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
 - 1) UL in "Fire Resistance Directory."
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Representatives from the Contractor, installer, fire stopping manufacturer, inspector, and Architect shall attend. Discussion items include, but are not limited to, the following:
 1. Scheduling
 2. Codes, regulations, and governing authorities
 3. Inspection protocol
 4. Materials to be used
 5. Protection of areas not to be fireproofed
 6. Unusual conditions
 7. Areas to be fireproofed and their availability
 8. Areas difficult to fireproof or access
 9. Installation procedures

- F. On-Site Training: The fire stopping manufacturer shall provide all required on-site training of the installer applicators to ensure the installer can comply with fire stopping manufacturer's instructions to meet required UL ratings.
- G. Substitute Requests for A Specified Entity
1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
 2. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
 3. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
 4. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers ("Better". "Cheaper". "More competitive", etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
 5. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.

- d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.
6. The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
7. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:
- a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
8. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
- a. That the specifications have been read and are understood,
 - b. That the entity being submitted meets or exceeds all provisions of the specifications,
 - c. That all submitted information is true and accurate,
 - d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.

- e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. 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.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Notify selected applicable 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.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until the independent inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

PART 2 – PRODUCTS, MANUFACTURERS

- 2.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- A. Hilti
- B. International Protective Coatings Corp.
- C. Isolatek International.
- D. Nelson Firestop Products.
- E. 3M Fire Protection Products.
- F. Tremco.

2.2 STOPPING, GENERAL

- D. Compatibility: Provide through-penetration firestop systems that are listed and approved by governing authorities. Materials shall be 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.
- E. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the 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.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 - 2. Temporary forming materials.
 - 3. Substrate primers.
 - 4. Collars.
 - 5. Steel sleeves.
- F. Identification Tags: Provide permanent adhesive tags, professionally prepared, that show the UL assembly number, the date of installation, name of the installer, and the name of the company doing the installing.

2.3 MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
 - 1. Firestopping materials shall be low VOC and contain no added formaldehyde to comply with LEED requirements for certification.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- I. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- K. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
 - 2. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

2.4 CONSTRUCTION GAP FIRESTOPPING

- A. The following products are acceptable for use in firestopping the type construction gaps listed in the summary of this specification and indicated on the Drawings:
 - 1. FireDam Spray by 3-M or a reviewed substitute by Hilti, Nelson Fire Stop Products, or Tremco.
 - 2. Mineral Wool: When required as a component in construction with the firestopping material, provide fire-resistant mineral wool as recommended by the firestopping manufacturer and acceptable to the governing authorities.
 - 3. Damming Material: As recommended by the firestopping manufacturer.

2.5 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would

otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
 - 1. Select applicable and suitable specified firestopping materials that are recommended by the firestopping manufacturer for each intended application regarding moisture and movement conditions.
- B. Install fireproofing using materials and methods to comply with requirements of UL and local governing authorities. Where specific UL assembly numbers are indicated on the Drawings, install firestopping materials to comply with the indicated assembly numbers.
- C. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- G. Install fill materials for firestop systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- H. Identification Tags: Complete a proper identification tag for each installation and install the tag to identify the system. Print all information clearly and legibly.

3.4 FIELD QUALITY CONTROL

- A. Coordinate with the selected testing agency for required sampling and testing. Arrange for testing as required by the testing agency. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.

- C. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.

3.5 IDENTIFICATION

- A. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - 1. The words: "Warning--Through-Penetration Firestop System--Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Through-penetration firestop system manufacturer's name.
 - 6. Installer's name.

3.6 CONSTRUCTION GAP FIRE-STOPPING

- A. Install fire stopping in construction gaps, separations, joints, created between
 - 1. Edges of floor slabs and exterior wall construction.
 - 2. Tops of partitions and underside of structural systems.
 - 3. Tops of partitions and underside of ceilings or ceiling assemblies.
 - 1. Control joints in masonry partitions.
 - 2. Different constructions materials such as but not limited to CMU and drywall and similar type construction.
- B. When required by the manufacturer, install damming material and fire safing according to the manufacturer's instructions.
- C. Remove damming material after firestopping has cured.

3.7 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

University of South Carolina Aiken
Economics Department Renovations
Aiken, South Carolina
Project No. H29-I344

Project No. 014007.01
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END OF SECTION 07 84 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Latex joint sealants.
3. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers eight samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples: For each kind and color of joint sealant required.
- C. Joint-Sealant Schedule: Include the following information:
 1. Joint-sealant application, joint location, and designation.
 2. Joint-sealant manufacturer and product name.
 3. Joint-sealant formulation.
 4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Preconstruction compatibility and adhesion test reports.
- C. Preconstruction field-adhesion test reports.

- D. Field-adhesion test reports.
- E. Warranties.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
- B. Preinstallation Conference: Conduct conference at [Project site] <Insert location>.

1.6 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

- C. Stain-Test-Response Characteristics: Where 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.

2.2 SILICONE JOINT SEALANTS

- A. Mildew-Resistant, Neutral-Curing Silicone Joint Sealant: ASTM C 920.

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems.
 - b. Dow Corning Corporation.
 - c. GE Advanced Materials - Silicones.
 - d. May National Associates, Inc.
 - e. Pecora Corporation.
 - f. Polymeric Systems, Inc.
 - g. Schnee-Morehead, Inc.
 - h. Sika Corporation; Construction Products Division.
 - i. Tremco Incorporated.
- 2. Type: Single component (S) or multicomponent (M).
- 3. Grade: Pourable (P) or [nonsag (NS)].
- 4. Class: 100/50.
- 5. Uses Related to Exposure: Nontraffic (NT).

2.3 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. BASF Building Systems.
 - b. Bostik, Inc.
 - c. May National Associates, Inc.
 - d. Pecora Corporation.
 - e. Schnee-Morehead, Inc.
 - f. Tremco Incorporated.

2.4 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Pecora Corporation .
 - b. USG Corporation.

2.5 JOINT SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

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.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove laitance and form-release agents from concrete.
 - 2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by 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 or primer 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.

3.2 INSTALLATION

- A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- B. Install sealant backings of kind 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.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. 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.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs 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. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

- G. 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.

3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each kind of sealant and joint substrate.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints in unit masonry.
 - b. Joints in exterior insulation and finish systems.
 - c. Joints between metal panels.
 - d. Perimeter joints between materials listed above and frames of doors, windows and louvers.
 - e. Control and expansion joints in ceilings and other overhead surfaces.
 - f. Other joints as indicated.
 - 2. Joint Sealant: Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints in unit masonry.
 - b. Joints in exterior insulation and finish systems.
 - c. Joints between metal panels.
 - d. Perimeter joints between materials listed above and frames of doors, windows and louvers.

- e. Control and expansion joints in ceilings and other overhead surfaces.
 - f. Other joints as indicated.
2. Joint Sealant: Silicone.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical joints on exposed surfaces of partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - f. Other joints as indicated.
 2. Joint Sealant: Latex.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces[<JS-#>].
1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - c. Other joints as indicated.
 2. Joint Sealant: Silicone.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 92 00

SECTION 08 12 13 - HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hollow-metal frames. Frames may be required if existing frames are damaged or incapable of receiving new doors
- B. Related Requirements:
 - 1. Section 08 14 16 "Flush Wood Doors" for wood doors installed in hollow-metal frames.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: After on site review of existing door openings; schedule shall be prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Amweld International, LLC.
 - 2. Ceco Door; ASSA ABLOY.
 - 3. Commercial Door & Hardware Inc.
 - 4. Curries Company; ASSA ABLOY.
 - 5. DKS Steel Door & Frame Systems, Inc.
 - 6. HMF Express, LLC.
 - 7. Megamet Industries, Inc.

8. Mesker Door Inc.
9. Republic Doors and Frames.
10. Steelcraft; an Ingersoll-Rand brand.
11. Stiles Custom Metal, Inc.

2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.

2.3 INTERIOR FRAMES

- A. Standard-Duty Frames: SDI A250.8, Level 1..
 1. Physical Performance: Level C according to SDI A250.4.
 2. Materials: Uncoated, cold-rolled steel sheet, minimum thickness of 0.042 inch (1.0 mm).
 3. Construction: Face welded.
 4. Exposed Finish: Prime.

2.4 FRAME ANCHORS

- A. Jamb Anchors:
 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.
 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick.
 3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
 4. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch-(9.5-mm-) diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:

2.5 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.6 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
 - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
 - 5. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c., to match coursing.

- b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c.
 - c. Compression Type: Not less than two anchors in each frame.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.
6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
- C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce frames to receive nontemplated, mortised, and surface-mounted hardware.
 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- D. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with [butted] [or] [mitered] hairline joints.
1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior frames.
 4. Provide loose stops and moldings on inside of hollow-metal work.
 5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.7 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: SDI A250.10.

2.8 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
 8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.

- c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- B. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
- 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (51 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 08 12 13

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-core doors with wood-veneer faces.
2. Factory finishing flush wood doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of door. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:

1. Dimensions and locations of blocking.
2. Dimensions and locations of mortises and holes for hardware.
3. Dimensions and locations of cutouts.
4. Undercuts.
5. Requirements for veneer matching.
6. Doors to be factory finished and finish requirements.
7. Fire-protection ratings for fire-rated doors.

C. Samples: For factory-finished doors.

1.3 INFORMATIONAL SUBMITTALS

A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is a certified participant in AWI's Quality Certification Program.

B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Algoma Hardwoods, Inc.
 2. Chappell Door Co.
 3. Eggers Industries.
 4. Graham Wood Doors; ASSA ABLOY Group Company.
 5. Lambton Doors.
 6. Mohawk Flush Doors, Inc.
 7. Oshkosh Door Company.

2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.
- B. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- C. WDMA I.S.1-A Performance Grade:
1. Heavy Duty unless otherwise indicated.
 2. Extra Heavy Duty: Classrooms assembly spaces exits and where indicated.
 3. Standard Duty: Closets (not including janitor's closets) and where indicated.
- D. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.
1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
 2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
 3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- E. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

F. Particleboard-Core Doors:

1. Particleboard: ANSI A208.1, Grade LD-1 or Grade LD-2, made with binder containing no urea-formaldehyde.
2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of particleboard cores for doors indicated to receive exit devices.

G. Structural-Composite-Lumber-Core Doors:

1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.

H. Mineral-Core Doors:

1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:

1. Grade: Custom (Grade A faces).
2. Species: Match existing doors.
3. Cut: Match existing doors.
4. Match between Veneer Leaves: Slip match.
5. Assembly of Veneer Leaves on Door Faces: Balance match.
6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Core: Either glued or nonglued wood stave or structural composite lumber.
8. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

2.4 LIGHT FRAMES

- A. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in

doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.

1. Provide monolithic rated glazing for doors.
2. No wire glass will be used for glazing in fire rated doors.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
- C. Openings: Factory cut and trim openings through doors.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."
 3. Louvers: Factory install louvers in prepared openings.

2.6 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors that are indicated to receive transparent finish.
- C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
 1. Grade: AWI Premium.
 2. Finish: Manufacturer's standard finish with performance requirements comparable to either AWI System TR-2 catalyzed lacquer or AWI System TR-4 conversion varnish. Color of stain to be selected by the Architect.
 3. Effect: Filled finish.
 4. Sheen: Satin. medium rubbed effect.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hardware: For installation, see Section 087111 "Door Hardware"
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors according to NFPA 80.
 - 2. Install smoke- and draft-control doors according to NFPA 105.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - a. Comply with NFPA 80 for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION 08 14 16

SECTION 08 41 13 – ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following types of aluminum entrance and storefront work:
 - 1. Exterior entrance doors.
 - 2. Frames for entrances.
 - 3. Storefront-type framing system.
 - 4. Installing and testing door hardware provided by under Division 08 Section “Door Hardware”
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 08 Section 08 71 11 - “Door Hardware” for door hardware to be installed under this section
 - 2. Division 08 Section 08 80 00 “Glazing” for glass and glazing requirements.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum entrance that comply with performance characteristics specified, as demonstrated by testing the manufacturer's corresponding stock assemblies according to test methods indicated.
- B. Thermal Movement: Design the aluminum entrance framing systems to provide for expansion and contraction of the component materials. Entrance doors shall function normally over the specified temperature range.
 - 1. The system shall be capable of withstanding a metal surface temperature range of 180 deg F without buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, stress on glass, or other detrimental effects.
- C. Design Requirements: Provide aluminum entrance and storefront systems that comply with structural performance, air infiltration, and water penetration requirements indicated.

1. Wind Loads: Provide aluminum entrance and storefront assemblies capable of withstanding wind pressures of 20 psf inward and 20 psf outward acting normal to the plane of the wall.
- D. Structural Performance: Conduct tests for structural performance in accordance with ASTM E 330. At the conclusion of the tests there shall be no glass breakage or permanent damage to fasteners, anchors, hardware or actuating mechanism. Framing members shall have no permanent deformation in excess of 0.2 percent of their clear span.
1. Deflection Normal to the Plane of the Wall: Test pressure required to measure deflection of framing members normal to the plane of the wall shall be equivalent to the wind load specified above. Deflection shall not exceed 1/175 of the clear span, when subjected to uniform load deflection test.
 2. Deflection Parallel to the Plane of the Wall: Test pressures required to measure deflection parallel to the plane of the wall shall be equal to 1.5 times the wind pressures specified above or in accordance with local governing authorities, whichever is more stringent. Deflection of any member carrying its full dead load shall not exceed an amount that will reduce glass bite below 75 percent of the design dimension and shall not reduce the edge clearance between the member and the fixed panel, glass or other fixed member above to less than 1/8 inch. The clearance between the member and an operable door or window shall be at least 1/16 inch.
- E. Air Infiltration: Provide aluminum entrance framing system with a maximum infiltration rate of not more than 0.03 cfm per sq. ft. of fixed area (excluding operable door edges) when tested in accordance with ASTM E 283 at an inward test pressure differential of 6.24 psf.
- F. Water Penetration: Provide framing systems with no water penetration (excluding operable door edges) on inside face of any component as defined in the test method when tested in accordance with ASTM E 331 at static pressure of 12 psf.
- G. Condensation Resistance: Provide door and window systems with sufficient condensation resistance to prevent all condensation when interior temperature and relative humidity are within design parameters. However, when tested in accordance with the applicable sections of AAMA 1503, provide a minimum of condensation resistance factor of 63.
- H. Thermal Transmittance: Provide framing systems that have an overall U-value of 0.46 BTU/hr x sq. ft. x deg F at 15 mph exterior wind velocity when tested in accordance with AAMA 1503 with 2 panes of 1/4 inch clear glass.
- I. Corner Racking Of Doors: Test resistance to corner racking by the following Dual Moment Load Test procedures. Submit certified test results. Doors without certified test results will not be accepted:
1. Test section shall be on a corner section consisting of a side rail section 24 inches long and a top rail section 12 inches long.

2. Securely anchor top rail to test bench so that the corner extends beyond the edge of the bench 3 inches. Top of the bench shall be sound, solid, and rigid without deflection.
 3. Anchor a lever arm to the side rail at a point 19 inches from inside edge of the top rail. Attach a weight support pad at a point 19 inches from the inner edge of the side rail.
 4. Test section shall withstand a load of 245 pounds on the lever arm before reaching the point of failure. Point of failure is a 45 deg. or more rotation of the lever arm.
- J. For aluminum entrance doors, provide entrance doors and framing system that will provide the following performance:
1. Air Infiltration: Not more than the following values when tested in accordance with ASTM E 283 at an inward test pressure differential of 1.57 psf:
 - a. Single Doors: 0.43cfm per linear foot of crack length
 - b. Pairs of Doors: 0.50 cfm per linear foot of crack length
 2. Structural: Door corner structural strength test using dual moment loading criteria described above: 300 lbs.
 3. Structural uniform Load Test:
 - a. Single Doors: 91.5 psf
 - b. Pair Of Doors: 91.5 psf
 4. Forced Entry Resistance: 300 pounds.
- K. Seismic Loads: Provide entrance and storefront systems, including anchorage, capable of withstanding the effects of earthquake motions calculated according to requirements of authorities having jurisdiction or ASCE 7, "Minimum Design Loads for Buildings and Other Structures," Section 9, "Earthquake Loads," whichever are more stringent.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.
1. Product data for each aluminum entrance and storefront system required, including:
 - a. Manufacturer's standard details and fabrication methods.
 - b. Data on finishing, hardware and accessories.
 - c. Recommendations for maintenance and cleaning of exterior surfaces.
 2. Shop drawings for each aluminum entrance and storefront system required, prepared by the manufacturer, including:
 - a. Layout and installation details, including relationship to adjacent work.
 - b. Elevations at 1/4 inch = 1 foot scale.
 - c. Detail sections of typical composite members.
 - d. Anchors and reinforcement.
 - e. Hardware design, finish and mounting heights.

- f. Provisions for expansion and contraction.
 - g. Glazing details.
 - h. Dimensions of top and bottom rails of entrance doors.
 - i. Calculations: Submit design calculations and proof to the Architect in a neat and orderly form which can be easily reviewed. Calculations shall indicate all loads, shears, moments, and deflections due to the various loading conditions to facilitate connections to the existing structural system. Calculations shall stamped and signed by a Professional Engineer legally registered in and authorized to practice in the state where the system is to be installed
 - j. Show details of factory installed thermally approved system including thermally broken sill pan.
 - k. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
3. Hardware Schedule: Submit complete hardware schedule organized into sets based on hardware specified. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish. Include item name, name of the manufacturer and complete designations of every item required for each door opening.
 4. Samples for Initial Color Selection: Submit pairs of samples of each specified color and finish on 12-inch long sections of extrusions or formed shapes. Where normal color variations are anticipated, include 2 or more units in each set of samples indicating extreme limits of color variations.
 5. Samples for Verification Purposes: The Architect reserves the right to require additional samples, that show fabrication techniques and workmanship, and design of hardware and accessories.
 6. Test Reports: Provide certified test reports from a qualified independent testing laboratory showing that specified systems provided on this project have been tested in accordance with specified test procedures and comply with performance criteria, parameters, and characteristics indicated. The system shall have passed the required tests prior to submitting bids. If the system has been installed without the required test reports, the unacceptable system will be removed from the site and replaced with an acceptable system, at the Contractor's expense. As a minimum, test reports shall provide the following: Name of testing laboratory, name of the person conducting the test, date of the test, manufacturer of and the system tested, test parameters and where the tested unit fell within the required parameters, seal certifying test results.
 7. Qualifications: Submit certification that aluminum system installer meets all qualifications set forth under Quality Assurance. Include certifications, copies and samples required under Quality Assurance.
 8. Manufacturer's Letter Of Compliance: Manufacturer shall submit a "letter of compliance" (on company letterhead, form letters are not acceptable) to the Architect

certifying that systems provided under this specification comply with the design and fabrication requirements stated in this specification. Systems provided by a manufacturer not willing to provide this certification are not acceptable. If the system has been installed, the Architect may require that the unacceptable system be removed from the site and replaced with an acceptable system, at the Contractor's expense.

9. Letter of Installer Approval: Within 5 days after Award of Contract, submit a current letter on the manufacturer's letterhead and signed by an authorized representative of the specified manufacturer stating the proposed installer is a qualified and approved installer of the specified manufacturer of the system/product to be installed, can purchase the specified system/product directly from the specified manufacturer, and has successfully installed the specified system/product, and has been an approved installer for at least the time stipulated under Installer Qualifications. Bids without this letter will be considered non-responsive.
10. Ten days prior to submitting shop drawing submittal, submit a letter or other acceptable document on the manufacturer's letterhead showing the following information: Altered documentation will be rejected. Manufacturer may be asked to verify the requested information:
 - a. Date of purchase or intended date of purchase.
 - b. System intended to purchase.
 - c. Anticipated date of delivery.
 - d. System being shipped.
 - e. Quantity ordered.
 - f. Name of entity that purchased the materials.
 - g. Name of entity to which materials are being shipped.
 - h. Name of entity from which system or materials were purchased.
 - i. Project name and location for which materials are being purchased.
 - j. Certified letter that shop drawings will be prepared by the manufacturer or by a manufacturer-approved drafting service on paper with manufacturer's title block and showing project name and location.
 - k. Shop drawings will be sealed and stamped by an Professional Engineer licensed in the state where the Project is located.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has the following qualifications. If it is determined after award of contract that the installer does not meet all of the following requirements, the Contractor shall submit the name of an installer that meets the requirements.
 1. Has successfully completed installation of aluminum systems similar in material, design, and extent to those specified and required for this Project and with a record of successful in-service performance.

2. Shall be a currently approved installer of the specified system manufacturer for at least 3 continuous years prior to project bid date.
3. Shall be an approved installer of and have a current working open line of credit with the specified aluminum system manufacturer that is listed as a basis of bid – no exceptions. Submit current letter of proof within 3 days after award of contract. This provision shall apply even if the system is purchased from a distributor.
4. Shall be either an authorized agent or authorized distributor of the specified system and be authorized to purchase the specified system directly from the system manufacturer. Submit a current letter of proof from the system manufacturer.
5. Shall have purchased the specified systems and materials directly from the system manufacturer and not through a separate party.
6. The original installer selected by the Contractor to perform the installation shall not sub-let the Work described in this specification without written approval from the Owner and the Architect and then may only sub-let to an installer acceptable to the Owner and the Architect.
7. The original installer shall be held responsible for all work or lack of work performed under this specification regardless of who install the units.
8. Quality Control Plan: The installer shall have a verifiable Quality Assurance/Control Program at the time bids are accepted. As an absolute minimum, the plan shall include the following provisions. Submit a copy of the manual within 5 days after Award of Contract. An unacceptable Quality Assurance/Control Plan is reason for disqualifying the installer.
 - a. Job Visit Log Book
 - b. Job Visit Schedule (entries from previous jobs may be requested)
 - c. Quality Assurance/Control manual
 - d. Names and titles of individuals making job visits
 - e. With the Quality Assurance/Control Plan, submit a completed Job Log Book, for projects of comparable size and complexity, that contains project name and location, system inspected, name of inspector, date of inspection, and observations made from 3 previously completed projects. Contractor's project site visitor log may be checked for verification. Installers that do not provide this submittal are unacceptable and will be disqualified.
9. The same installer/entity that is contractually bound to the General Contractor shall perform the actual installation with the installers own forces. Labor for installation of Work provided under this section of the specifications shall not be subcontracted. Split contracts are not acceptable. Work performed under this section of the specifications shall be by only a first-tier subcontractor meaning the subcontractor that is contractually bound directly to the General Contractor or to the Owner and is the entity that is responsible for the Work described in this Section of the specifications. This first-tier subcontractor shall not act as a broker, shall perform all work with its own labor forces, and shall not subcontract any portion of the Work to another entity. The workers and technicians required to perform the Work shall be in direct employment of the installer at the time shop drawings are submitted. For the purpose of this Contract, the installers own employees are considered employees for which the installer contributes directly to and is directly financially responsible for the following employment expenses:

- a. All Federal, State and Local Taxes
 - b. Social Security
 - c. Insurance
 - d. Workers Compensation
 - e. Holidays
 - f. Vacations
 - g. Sick Time
 - h. Retirement
- C. Manufacturer's Qualifications: Provide aluminum entrances systems produced by a firm experienced in manufacturing systems that are similar to those indicated for this project and that has a record of successful in-service performance. Acceptable manufacturer shall meet the following criteria:
1. Manufacturer shall have and in-house engineering department. Out-sourcing is not acceptable.
 2. Manufacturer's engineering department shall prepare all shop drawings in-house. Out-sourcing is not acceptable.
 3. If the to be system to be provided for this project is other than the specified system, the manufacturer's engineering department shall write a "letter of compliance" stating that the design and manufacture of the provided system complies with the specifications. If it is determined that a system other than that specified was installed without the required letter, the Contractor may be required to remove the installed and replace it with the specified system at no additional cost.
 4. Manufacturer shall employ a technical representative who is an employee of the manufacturer, is thoroughly trained and experienced in the type of system or systems being provided under this specification, specializes in field evaluations, is capable of evaluating pre and post installation conditions, and making applicable recommendations to correct unacceptable conditions. Out-sourcing is not acceptable.
- D. Fabricator Qualifications: Provide aluminum entrances systems fabricated by a firm that is experienced in producing systems that are similar to those indicated for this Project, and that has a record of successful in-service performance. The fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the Work.
- E. Single Source Responsibility: Obtain systems in this section and other aluminum window framing systems, and operable and fixed window systems required for this project from one source and from a single manufacturer to ensure consistency and uniformity in color, finish, and quality.
- F. Design Criteria: The drawings indicate the size, profile, and dimensional requirements of aluminum entrance work required and are based on the specific types and models indicated. Aluminum entrance by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

- G. Mockups: Before installing aluminum systems, construct full size mockups for each form and type of aluminum system and construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for completed Work.
1. Locate mockups in the location indicated or, if not indicated, as directed by Architect.
 2. The aluminum system manufacturer's technical representative shall be present at the beginning of the mockup installation and shall ensure that the installer understands the correct installation procedures. The aluminum system manufacturer's technical representative shall inspect and approve the installed mockup for compliance with manufacturer's installation requirements. Notify the aluminum system manufacturer in sufficient time to be present.
 3. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
 4. Demonstrate the proposed range of aesthetic effects and workmanship. As a minimum, show the following: Framing, fastening, joints and sealants, glazing, trim, finishing, and terminations.
 5. Obtain Architect's and aluminum system manufacturer's technical representative's approval of mockups before proceeding with installation of aluminum systems.
 - a. Perform a water test on completed mockup as described in Part 3 of this specification.
 - b. Acceptance of mockups is for aesthetics, qualities of workmanship; sealant installation, water test results, joinery, operation and performance, and other material and construction qualities specifically determined by aluminum system manufacturer's technical representative and the Architect.
 - c. Approved mockup will be used as a basis and gauge to judge and evaluate the remainder of the installation.
 - d. Acceptance of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. When directed, demolish and remove mockups from Project site.
 - b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.
- H. Substitute Requests For A Specified Entity
1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be

requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.

2. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
3. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
4. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
5. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.

- A. Deliver aluminum entrance and storefront components in the manufacturer's original protective packaging.
 - 1. Factory-wrap each member and component with an easily removed protective covering.
 - 2. Keep protective covering and wrap in place as long as possible during handling, storage, and installation to provide maximum protection.
 - 3. The Contractor shall be responsible for repairing damaged or defaced components members or removing damaged components and members and replacing with acceptable components and members.

- B. Store aluminum components in a clean dry location away from uncured masonry or concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
 - 1. Stack framing components in a manner that will prevent bending and avoid significant or permanent damage.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Check openings by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.
 - 1. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.8 WARRANTY

- A. The warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract Documents, and is in addition to and runs concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

- B. Warranty: Submit a written warranty, executed by the manufacturer, agreeing to repair or replace units that fail in materials or workmanship within the specified warranty period. Repairs and replacement shall include all materials and labor. Failures include, but are not necessarily limited to:
 - 1. Structural failures including excessive deflection, water leakage, or air infiltration.
 - 2. Faulty operation.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

- 4. Warranty Period: 3 years after the date of Substantial Completion.
- C. Special Transferable Corner Warranty For Entrance Doors:
 - 1. Lifetime of the door
- D. Finish Warranty:
 - 1. Fluoropolymer: 5 years

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide 1-inch insulating glass system entrance systems: YES45TU manufactured by YKK or a reviewed substitute. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. EFCO Corporation.
 - 2. Vistawall
 - 3. Tubelite
 - 4. TRACO

2.2 MATERIALS

- A. Aluminum Members: Alloy and temper recommended by the manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi ultimate tensile strength. Provide in thickness to meet required loads; however, not less than 0.094 inch thick and 0.125 inch thick at any location for main frame and sash members and at points to receive reinforcing and fasteners. Comply with ASTM B 221 for aluminum extrusions, ASTM B 209 for aluminum sheet or plate, and ASTM B 211 for aluminum bars, rods and wire.
- B. Carbon steel reinforcement of aluminum framing members shall comply with ASTM A 36 for structural shapes, plates and bars, ASTM A 611 for cold rolled sheet and strip, or ASTM A 570 for hot rolled sheet and strip.
- C. Glass and Glazing Materials: Comply with requirements of "Glass and Glazing" section of these specifications.
- D. Fasteners: Provide fasteners of aluminum, nonmagnetic stainless steel, zinc plated steel, or other material warranted by the manufacturer to be noncorrosive and compatible with aluminum components, hardware, anchors and other components.

1. Reinforcement: Where fasteners screw-anchor into aluminum members less than 0.125 inches thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard noncorrosive pressed-in splined grommet nuts.
 2. Exposed Fasteners: Do not use exposed fasteners except for application of hardware. For application of hardware, use Phillips flat-head machine screws that match the finish of member or hardware being fastened.
- E. Concealed Flashing: 0.0179-inch minimum dead-soft stainless steel, or 0.026-inch thick minimum extruded aluminum of alloy and type selected by manufacturer for compatibility with other components.
- F. Brackets and Reinforcements: Provide high-strength aluminum brackets and reinforcements; where use of aluminum is not feasible provide nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 123.
- G. Concrete and Masonry Inserts: Provide cast iron, malleable iron, or hot-dip galvanized steel inserts complying with ASTM A 123.

2.3 HARDWARE

- A. General: Hardware requirements for hardware items other than those indicated to be provided by the aluminum entrance manufacturer are included in hardware allowance under Division 01 Section "Allowances" and Division 08 Section "Door Hardware".
- B. Provide heavy-duty hardware units as indicated, scheduled, or required for operation of each door, including the following items of sizes, number, and type recommended by manufacturer for service required; finish to match door. Properly prepare doors to receive door hardware that is to be provided under this section and for hardware that will be provide under other sections.
1. Hinges: Furnished under Division 08 Section "Door Hardware".
 2. Closers: Furnished under Division 08 Section "Door Hardware".
 3. Exit Devices: Furnished under Division 08 Section "Door Hardware".
 4. Pulls: Furnished under Division 08 Section "Door Hardware" and as selected by the Architect.
 5. Threshold: Manufacturer's standard barrier free for the door operation. Finish to match entrance doors.
 6. Removable Mullion: Provided under Division 08 Section "Door Hardware".
 7. Mullion Stabilizer: Provide manufacturer's standard mullion stabilizer that prevents doors from being jerked open and mullions from being racked and distorted during attempts to pry or force doors open when they are locked. Coordinate requirements and installation with the Owner.

2.4 COMPONENTS

- A. Framing System: Provide manufacturer's advertised entrance framing systems fabricated from extruded aluminum members of size and profile indicated. Unless indicated otherwise, all framing members shall have a maximum face dimension of 2 inches and a depth of 4-1/2 inches. Framing system shall be provided as a system that is advertised as such and can be substantiated with manufacturer's published literature. Include subframes and other reinforcing members of the type indicated. Provide for flush glazing from the exterior on all sides without projecting stops. Shop-fabricate and preassemble frame components where possible. Provide storefront frame sections without exposed seams.
1. Mullion Configurations: Provide pockets at the inside glazing face to receive resilient elastomeric glazing. Mullions and horizontals shall be one piece. Make provisions to drain moisture accumulation to the exterior.
 2. All primary members shall be thermally broken with a poured polyurethane and debridged thermal break. Extruded fiberglass separator bars not acceptable. Thermally broken system shall include a factory provided thermally broken sill pan.
- B. Entrance Door Frames: Provide tubular and channel frame entrance doorframe assemblies, as indicated, with welded or mechanical joints in accordance with manufacturer's standards. Corners shall be welded and bolted. Reinforce as necessary to support required loads.
- C. Standard Duty Swing Doors: The following is based on Model 50D by YKK or a reviewed substitute. Entrance doors shall be manufactured by the same entity as for the storefront:
1. Provide tubular frame members fabricated with mechanical joints using heavy inserted reinforcing plates and welded corners.
 2. Glazing: Fabricate doors to facilitate replacement of glass or panels, without disassembly of stiles and rails. Provide snap-on extruded aluminum glazing stops for 1-inch insulating glass and with exterior stops anchored for nonremoval.
 3. Stiles: 1-3/4-inch thick by 5 inches wide.
 4. Top Rail: minimum width of 7 inches high or as required to accept surface-mounted closers, as specified in Section 08710 - Door Hardware, so that closers are concealed and cannot be seen from the exterior. Coordinate with Division 08 Section "Door Hardware". Drop plates to accommodate and conceal closers are not acceptable.
 5. Bottom Rail: 12-inch high bottom rail of design indicated of minimum height to comply with current ADA requirements.
 6. Automatic Door Operators: Doors shall be completely compatible and properly operate with automatic door operators specified elsewhere. Installation with the operator shall be neat and acceptable to the Architect.
- D. Flashing: Flexible and self-adhering, as recommended by the window manufacturer for the intended application and that is compatible with the window unit and wall system and complies with AAMA 711-07. Must permanently prevent water intrusion into the building where installed.

2.5 FABRICATION

- A. General: Fabricate aluminum entrance components to designs, sizes and thicknesses indicated and to comply with indicated standards. Sizes and profile requirements are indicated on the drawings. Variable dimensions are indicated, with maximum and minimum dimensions required, to achieve design requirements and coordination with other work.
 - 1. Thermally Improved Construction: Fabricate entrance framing system with a continuous poured and de-bridged, two-part, chemically-cured rubberized high density polyurethane thermal barrier that is permanently bonded to the aluminum framing and located between exterior materials and exposed interior members to eliminate direct metal-to-metal contact. Use manufacturer's standard construction that has been in use for similar projects for not less than 8 years. Systems using non-structural thermal barriers are not acceptable. Clearly identify and detail thermal barrier on the shop drawings, and if the thermal barrier is structural state so on the shop drawings. Extruded fiberglass separator bars are not acceptable.
 - a. Thermally broken system shall include a factory provided thermally broken sill pan.
- B. Prefabrication: Complete fabrication, assembly, finishing, hardware application, and other work to the greatest extent possible before shipment to the Project site. Disassemble components only as necessary for shipment and installation.
 - 1. Perform fabrication operations, including cutting, fitting, forming, drilling and grinding of metal work to prevent damage to exposed finish surfaces. Complete these operations for hardware prior to application of finishes.
 - 2. Do not drill and tap for surface-mounted hardware items until time of installation at project site.
 - 3. Preglaze door and frame units to greatest extent possible.
- C. Welding: Comply with AWS recommendations. Grind exposed welds smooth to remove weld spatter and welding oxides. Restore mechanical finish.
 - 1. Welding behind finished surfaces shall be performed in such a manner as to minimize distortion and discoloration on the finished surface.
- D. Reinforcing: Install reinforcing as required for hardware and as necessary for performance requirements, sag resistance and rigidity.
- E. Dissimilar Metals: Separate dissimilar metals with bituminous paint, or a suitable sealant, or a nonabsorptive plastic or elastomeric tape, or a gasket between the surfaces. Do not use coatings containing lead.
- F. Continuity: Maintain accurate relation of planes and angles with hairline fit of contacting members.

1. Uniformity of Metal Finish: Abutting extruded aluminum members shall not have an integral color or texture variation greater than half the range indicated in the sample pair submittal.
- G. Fasteners: Conceal fasteners wherever possible.
- H. Weatherstripping: Replaceable. For exterior doors, provide compression weatherstripping against fixed stops. At other edges, provide sliding weatherstripping retained in adjustable strip mortised into door edge. Provide in molded neoprene complying with ASTM D 2000 or molded PVC complying with ASTM D 2287
1. Provide EPDM blade gasket weatherstripping in bottom door rail, adjustable for contact with threshold. Gasketing shall match finish of the door.
 2. Provide heavy duty replaceable weatherstripping at meeting stile of pairs of exterior doors.
 3. Provide appropriate flashing, sealing, and draining at the top of all entrances to prevent water and moisture entry into the building. Show and identify details on shop drawings.
- I. Door Tolerances
1. Material Cuts: Square to 1/32 inch off square, maximum over largest dimension; proportionate amount of 1/32 inch on other two dimensions.
 2. Maximum Offset: 1/64 inch in alignment of two consecutive members in line end-to-end.
 3. Maximum Offset: 1/64 inch between framing members at glazing pocket corners.
 4. Joints Between Adjacent Members in Same Assemble: Hairline and square to adjacent member.
 5. Variation In Squaring Diagonals For Doors and Fabricated Assemblies: 1/16 inch.
 6. Flatness For Doors and Fabricated Assemblies: +/- 1/16 of neutral plane.
- J. Door Hardware: The entrance door manufacturer shall
1. Receive door hardware from door hardware supplier.
 2. Inspect contents for completeness, proper and required components, and proper working condition. Notify the door hardware supplier of unsatisfactory conditions.
 3. Prepare entrance doors and frames to receive door hardware.
 4. Install door hardware.
 5. Test door hardware for proper installation prior to shipping.
 6. Exchange malfunctioning hardware for proper operating hardware.
 7. Ship doors and frames with door hardware properly installed and operating.
- 2.6 FINISHES
- A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes. Match color and type finish of existing by using the applicable finish from one of the following:

- B. High-Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.
 - 1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color coat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2. Color as selected by the Architect from full range of available standard and custom colors and sheens.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and supports, with the Installer present, for compliance with requirements indicated, installation tolerances, and other conditions that affect installation of aluminum entrances. Correct unsatisfactory conditions before proceeding with the installation.
- B. Inspection By Manufacturer's Technical Representative: An experienced technical representative of the manufacturer of the entrance and storefront system shall inspect and approve the building shell where the specified systems are to be installed. This inspector shall inspect for the suitability of the building shell to receive the specified systems and shall issue a written report to the Architect and the Contractor. The report shall list unsuitable conditions and conditions that may pose potential problems and applicable recommendations.
 - 1. No portion of the specified system shall be installed, erected, or set in place until the Contractor has corrected all noted defects and the manufacturer's representative accepts existing conditions.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for installation.
- B. Set units plumb, level, and true to line, without warp or rack of framing members, doors, or panels. Install components in proper alignment and relation to established lines and grades indicated. Provide proper support and anchor securely in place.
- C. Construction Tolerances: Install aluminum entrance to comply with the following tolerances:
 - 1. Variation from Plane: Do not exceed 1/8 inch in 12 feet of length or 1/4 inch in any total length.

2. Offset from Alignment: The maximum offset from true alignment between two identical members abutting end to end in line shall not exceed 1/16 inch.
 3. Diagonal Measurements: The maximum difference in diagonal measurements shall not exceed 1/8 inch.
 4. Offset at Corners: The maximum out-of-plane offset of framing at corners shall not exceed 1/32 inch.
- D. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
1. Zinc or cadmium plate steel anchors and other unexposed fasteners after fabrication.
 2. Paint dissimilar metals where drainage from them passes over aluminum.
 3. Paint aluminum surfaces in contact with mortar, concrete or other masonry with alkali resistant coating.
 4. Paint wood and similar absorptive material in contact with aluminum and exposed to the elements or otherwise subject to wetting, with two coats of aluminum house paint. Seal joints between the materials with sealant.
- E. Drill and tap frames and doors and apply surface-mounted hardware items. Comply with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.
- F. Set sill members and other members in bed of sealant as indicated, or with joint fillers or gaskets as indicated to provide weathertight construction. Comply with requirements of Division 7 for sealants, fillers, and gaskets.
- G. Refer to "Glass and Glazing" Section of Division 8 for installation of glass and other panels indicated to be glazed into doors and framing, and not preglazed by manufacturer.
- H. Flashing: Install wall flashing according to window and flashing manufacturer's instructions to produce weathertight construction. Install flashing in a smooth and even, application with full and complete contact with substrate and without wrinkles, gaps, or fishmouths.
- I. Sun Shade: Install sun shade securely to the storefront system according to manufacturers instructions where shown on the Drawings. Do not mar adjacent surfaces and finishes during installation. Installed shades shall not whistle or rattle in the wind.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Testing, inspecting, and preparing and submitting reports will be as determined under Division 01 Section – Quality Control.
- B. Conduct on-site tests for water infiltration with window manufacturer's representative present.
 - 1. Testing Methodology:
 - a. Storefront: Field test storefront panels for water infiltration according to AAMA 503 at 6.24 psf. There shall be no water infiltration. Quantity field tested shall be 10 percent of the total quantity installed; however, minimum number tested shall be 30 sq. ft. The Architect shall select units to be tested.
 - b. Entrances: Field test entrance doors for water infiltration according to ASTM E1105 at 2.86 psf. There shall be no water infiltration. Quantity field tested shall be 10 percent of the total quantity installed; however, minimum number tested shall be 3. The Architect shall select units to be tested. There shall be no water infiltration.
 - 2. Test Reports: Shall be prepared according to AAMA 501.2. Submit a copy of the test results to the Architect.
- C. Tests not meeting specified requirements and units having similar deficiencies shall be corrected at no cost to the Owner. Remove and replace windows where test results indicate that they do not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.4 ADJUSTING

- A. Coordinate design, fabrication, and installation of aluminum doors and entrances with the door hardware supplier and door hardware being supplied for specified doors. All aluminum entrance doors shall be installed and adjusted, as a minimum, to comply with the following criteria:
 - 1. All exterior doors shall provide a weathertight and watertight entrance.
 - 2. All hardware shall operate smoothly and quietly without binding or dragging.
 - 3. All doors and hardware shall be tight.
 - 4. All doors shall open and close smoothly and evenly without binding or sticking.
 - 5. All doors shall close without banging or vibrating frame.
 - 6. All doors shall not rattle after closing.
 - 7. All doors shall contact stops properly.
 - 8. All doors shall be set adjusted to opening force that complies with ADA requirements
 - 9. All latch bolts and dead bolts shall center with applicable strikes.
 - 10. All cylinders shall operate smoothly and freely and keys shall enter and withdraw easily without sticking.
 - 11. All door stops shall stop door before door reaches limit of closer.

12. Clearances between all doors and frames shall be correct and uniform around the perimeter of each leaf. Air and water infiltration shall comply with specified parameters.
13. All weatherstripping shall be continuous without gaps or openings.
14. All Joints in weatherstripping shall be tight.
15. Weatherstripping shall not interfere with the normal operation of the door.
16. Each contact surface of each door leaf shall have full and uniform contact with weatherstripping and thresholds without interruption.

3.5 CLEANING

- A. Clean the completed system, inside and out, promptly after installation, exercising care to avoid damage to coatings.
- B. Clean glass surfaces after installation, complying with requirements contained in the "Glass and Glazing" Section for cleaning and maintenance. Remove excess glazing and sealant compounds, dirt and other substances from aluminum surfaces.

3.6 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at time of acceptance.

END OF SECTION 08 41 13

SECTION 08 71 00 - FINISH HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. Definition: "Finish Hardware" includes items known commercially as finish hardware which are required for swing, sliding and folding doors, except special types of unique and non-matching hardware specified in the same section as the door and door frame.

B. Extent of finish hardware required is indicated on drawings and in schedules.

1. Types of finish hardware required include, but are not limited to, the following:

- Butt Hinges
- Lock cylinders and keys
- Lock and latch sets
- Exit devices
- Push/pull units
- Closers
- Door trim units
- Gasket for fire-rated doors
- Protection plates
- Thresholds

2. References

- NFPA-80-As adopted – Standard for Fire Doors and Windows
- NFPA-101-As adopted – Life Safety Code
- ADA – The Americans with Disabilities Act – Title III – Public Accommodations and Facilities
- ANSI-A 117.1-American National Standards Institute – Accessible and Usable Buildings and Facilities
- International Building Code as Adopted
- Positive Pressure Testing UL10C & UBC7.2
- UL - Underwriters Laboratories
- WHI – Warnock Hersey International, Division of Inchscape Testing Services
- State and Local Codes including Authority Having Jurisdiction

1.3 RELATED WORK

- A. Flush Wood Doors - Section 08 14 16
- B. Electrical – Documents.

1.4 QUALITY ASSURANCE

- A. Manufacturer: Obtain each type of hardware (ie. lock sets) from a single manufacturer, although several may be indicated as offering products complying with requirements.
- B. Supplier: A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 5 years. The supplier shall be, or shall employ, a Certified architectural hardware consultant (AHC) who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor. A Certified architectural hardware consultant (AHC) shall prepare all hardware schedules. The Hardware Supplier is responsible for proper coordination of all finished hardware with related sections to insure compatibility of products.
- C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL / WHI or FM for types and sizes of doors required and complies with requirements of door and door frame labels. Provide door seals to meet Positive Pressure Testing UL10C and UBC7 – 2 as required.
- D. Where panic exit devices are required on fire-rated doors (with supplementary marking on doors' UL or FM labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL / WHI or FM label on exit devices indicating "Fire Exit Hardware".
- E. Thru bolt door closers and exit devices, unless otherwise specified.
- F. Provide lever handle locksets ADA compliant.
- G. Smoke and Draft Control Assemblies: Where smoke and draft control door assemblies are required, provide door hardware that shall meet the requirements of assemblies tested according to UL1784 and installed in compliance with NFPA-105.
- H. Existing Frames: The Hardware Supplier shall review all existing openings prior to scheduling the specified hardware. It shall be the responsibility of the GC and the Hardware Supplier to verify the new doors with the specified hardware applications shall function in the existing frames. If frame modifications are required, the GC and the Hardware Supplier shall review the work required with the Architect and the Owner's representative. If changes to the specified hardware are required, the Hardware Supplier shall submit the proposed changes for approval. Hardware shall not be scheduled or furnished without the above referenced site visit and review.

1.5 SUBMITTALS

A. Product Data: Submit manufacturers' technical product data for each item of hardware in accordance with Division-1 section "Submittals". Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.

B. Hardware Schedule: Submit final hardware schedule in manner indicated below. Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish of hardware.

1. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:

- a. Type, style, function, size and finish of each hardware item.
- b. Name and manufacturer of each item.
- c. Fastenings and other pertinent information.
 - d. Location of hardware set cross-referenced to Drawings on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, codes, etc., contained in schedule.
- f. Mounting locations for hardware.
- g. Door and frame sizes and materials.
- h. Keying information.
 - i. Electrical drawings: elevation, riser & point to point. Include description of door function/electrified hardware function.

C. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.

D. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

E. Samples if Requested: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.

F. Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location, coordination and installation of hardware.

1.6 PRODUCT HANDLING

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
- D. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

PART 2 - PRODUCTS

2.1 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated in the Finish Hardware Data Sheet and Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers of the following:

Butts:	Ives
Locksets:	Schlage
Cylinders:	Best
Silencers:	Ives
Stops:	Ives
Closers:	LCN
Weather Strip:	National Guard
Kickplates:	Ives
Panic Devices:	Von Duprin
Magnetic Holders:	LCN

2.2 MATERIALS AND FABRICATION

- A. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- B. Manufacturer's Name Plate: Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.
- C. Manufacturer's identification will be permitted on rim of lock cylinders only.

D. Finishes:

- a. 626 (US26D) / 630 (US32D) for all finished metal hardware items except as otherwise indicated. Door closers to be powder coated to match. Exit devices to be 626 with 630 Dull Stainless Push Pads.

E. Lockset Design: Lever handle design shall be similar to 03A for mortise locks as manufactured by Schlage.

F. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

G. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

H. Provide concealed fasteners for hardware units which are exposed when door is closed, except to extent no standard units of type specified are available with concealed fasteners. Verify the use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use sex screw fasteners.

I. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

2.3

HINGES AND BUTTS

A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.

B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.

C. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

1. Steel Hinges: Steel pins.
2. Non-ferrous Hinges: Stainless steel pins.
3. Exterior Doors: Non-removable pins.
4. Out-swing Corridor Doors: Non-removable pins.
5. Interior Doors: Non-rising pins.
6. Tips: Flat button and matching plug, finished to match leaves.
7. Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" of additional height.

D. Acceptable Manufacturers: Match Existing

2.4 LOCK CYLINDERS AND KEYING

A. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.

B. Review the keying system with the Owner and provide the type required (master, grandmaster or great-grandmaster), either new or integrated with Owner's existing system.

C. Equip locks with Corbin Russwin cores keyed to the Owner's existing system. Furnish cylinders keyed alike or keyed different cores as directed. Furnish three (3) construction keys. The Keyway is Corbin Russwin 62C1.

D. Furnish keyed construction for the construction period. The Owner shall change Construction Keyed Cores to Permanent Cores.

E. Acceptable Manufacturers:
a. Corbin Russwin cylinders — As Specified.

F. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.

G. Comply with Owner's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.

H. Permanently inscribe each key with number or lock that identifies cylinder manufacturer key symbol, and notation "DO NOT DUPLICATE".

I. Key Material: Provide keys of nickel silver only.

J. Key Quantity: Furnish 3 change keys for each cylinder core. Master Keys as required by System.

K. Furnish one extra blank for each lock.

2.5 LOCKS, LATCHES AND BOLTS

A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

B. Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.

C. Provide roller type strikes where recommended by manufacturer of the latch and lock

units.

D. Lock Throw: Provide ¾" minimum throw of latch and deadbolt used on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

E. Provide 1" minimum throw on other latch and deadlock bolts.

F. Flush Bolt Heads: Minimum of 1/2" diameter rods of brass, bronze or stainless steel, with minimum 12" long rod for doors up to 7'-0" in height. Provide longer rods as necessary for doors exceeding 7'-0" in height.

G. Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to hold the push bar down and the latch bolt in the open position.

H. Locksets shall be mortise type Series 1000, Grade 1, ANSI 156.13. All locksets shall be furnished with thru-bolted lever trim. All locksets shall be operable by Corbin Russwin. Acceptable Lockset Manufacturers: Match Existing

2.6 PUSH/PULL UNITS

A. Exposed Fasteners: Provide manufacturer's standard exposed fasteners for installation; through-bolted for matched pairs, but not for single units.

2.7 CLOSERS AND DOOR CONTROL DEVICES

A. Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.

B. Closers: All door closers shall be of one manufacturer to provide for proper installation and servicing after installation. All closers shall be inspected after installation by a factory representative to ensure proper adjustment and operation. A report shall be filed with the architect after said visit has been made. Closer shall carry a manufacturer's TEN YEAR WARRANTY for hydraulic units and 2 year warranty for electrical and/or handicap power assist door closers against manufacturing defects and workmanship. . PRV [pressure relief valves] are not acceptable.

C. Parallel Arm Closers: Shall incorporate one piece forged steel arms or a steel rigid arm. Furnish regular arms, hold open arms, arms with stop built in, arms with hold open and stop built in as specified.

D. Built-In Stops: Where closers with built-in positive stops are used, the stops shall be of one piece cast malleable iron material with built in springs. Where required, the hold-open assembly handle for these stops shall rotate on ball bearings.

E. All door closers shall pass UL10C positive pressure fire test.

F. Non-sized: All exterior closers shall be non-sized to provide a full range of Size 1 to 5

closing power.

G. Hydraulic Fluid: All closers, with the exception of interior electronic closers, shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees F. to -30F. without requiring seasonal adjustment of closer speed to properly close the door. Fluid shall be non-flammable.

H. All closers shall have a powder coat finish on closer body, arm, cover and adapter plate. If powder coat finish is not available, pre-treat closer body, arm, cover and adapter plate with special rust inhibiting coating before painted finish is applied.

I. Provide all drop plates, shoe supports, templates, etc. to properly mount closers according to manufacturers' recommendations.

J. All closers shall be the product of one manufacturer.

K. Acceptable Manufacturers and Types: Match Existing

2.8 EXIT DEVICES

A. General: All devices shall be of one manufacturer to provide for proper installation and servicing. Devices shall be furnished non-handed and capable of direct field conversion for all available trim functions. All devices shall carry a three year warranty against manufacturing defects and workmanship.

B. Furnish all devices with stainless steel touch bars. Plastic parts are not acceptable.

C. Furnish all exit devices with deadlocking latchbolts or guarded latch (GL) feature.

D. Furnish all exit devices with cast metal end caps.

E. Furnish roller strikes with all exit devices.

F. Furnish stabilizers similar to Von Duprin 154 with all removable mullions.

G. Outside Trim: Shall be heavy duty type and fastened by means of concealed welded lugs and thru-bolts from the inside. Trim shall be forged brass with a minimum average thickness on the escutcheon of .130. Plate with trim shall be brass with minimum average thickness of .090 and have forged pulls. Where Lever Handles are specified provide 994L type Break Away Trim.

H. Furnish cylinders with all lockable exit devices.

I. Furnish required filler plates and shim kits for flush mounting of exit devices on all doors requiring same.

J. Acceptable Manufacturers and Types: Match Existing

2.9.1 DOOR TRIM UNITS

- A. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws or self-tapping screws.
- B. Fabricate protection plates (armor, kick or mop) not more than 2" less than door width on stop side and not more than 1" less than door width on pull side, x the height indicated.
- C. Metal Plates: Stainless steel, .050" (U.S. 18 ga.)..

2.10 WEATHER STRIP

- A. General: Except as otherwise indicated, provide continuous weatherstripping at each edge of every exterior door leaf. Provide type, sizes and profiles shown or scheduled. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.
- B. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- C. Acceptable Manufacturers:
 - 1. National Guard
 - 2. Pemko
 - 3. Zero

2.11 DOOR SILENCERS

- A. All hollow metal frames shall have gray resilient type silencers. Quantity (3) each on single doors and quantity (2) on pair of doors.

3.0 EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.2 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.3 HARDWARE SETS: Refer to Drawings

END OF SECTION 08 71 00

SECTION 08 80 00 - GLAZING

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 glazing for the following products, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Window units
 - 2. Vision lites
 - 3. Entrances and other doors

1.3 DEFINITIONS

- A. Manufacturer is used in this Section to refer to a firm that produces primary glass or fabricated glass as defined in the referenced glazing standard.
- C. Deterioration of Insulating Glass: Failure of the hermetic seal under normal use due to causes other than glass breakage and improper practices for maintaining, and cleaning insulating glass. Evidence of failure is the obstruction of vision by dust, moisture, or film on the interior surfaces of glass. Improper practices for maintaining and cleaning glass do not comply with the manufacturer's directions.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.
- B. Glass Design: Glass thicknesses indicated on Drawings are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria:

1. Minimum glass thickness, nominally, of lites is 0.230 inch.
2. Minimum glass thicknesses of lites, whether composed of annealed or heat-treated glass, are selected so the worst-case probability of failure does not exceed the following:
 - a. 8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action. Determine minimum thickness of monolithic annealed glass according to ASTM E 1300. For other than monolithic annealed glass, determine thickness per glass manufacturer's standard method of analysis including applying adjustment factors to ASTM E 1300 based on type of glass.
- C. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.
 1. Temperature Change (Range): 120 F deg, ambient; 180 F deg, material surfaces.

1.5 SUBMITTALS

- A. General: Submit the following according to Conditions of Contract and Division 01 Specification Sections.
- B. Product data for each glass product and glazing material indicated.
- C. Samples For Single Glazing: For verification purposes of 12-inch square samples of each type of glass indicated except for clear monolithic glass products, and 12-inch long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.
- D. Samples For Insulating Glass: Submit samples for all insulating glass assemblies. Include a sample of each type of glazing system/assembly to be used on the project. Each glazing sample shall contain a fully adhered label with the following listed information clearly marked. Glazing samples shall be of sufficient size to accommodate the requested information and still allow for visual evaluation of the glass and assembly. Samples without the following information will be rejected:
 1. Project name.
 2. Assembly date.
 3. Glass manufacturer's name and address.
 4. Fabricator's name and address.
 5. Name and color of each layer of glass in the assembly.
 6. When coated, location of coating within the assembly.
 7. The following certified performance Criteria for the glazing assembly:
 - a. Visible Light Transmittance %
 - b. UV Transmittance %

- c. Total Winter and Summer U-Value for assembly
 - d. Solar Heat Gain
 - e. Shading Coefficient
- E. Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.
- 1. Separate certifications are not required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.
- F. Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed for adhesion.
- G. Compatibility test report from manufacturer of insulating glass edge sealant indicating that glass edge sealants were tested for compatibility with other glazing materials including sealants, glazing tape, gaskets, setting blocks, and edge blocks.
- H. Product test reports for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.
- I. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in Division 1.

1.6 QUALITY ASSURANCE

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
- 1. SIGMA - Sealed Insulating Glass Manufacturers Association Publications:
 - a. TM-3000 "Vertical Glazing Guidelines"
 - b. TB-3001 "Sloped Glazing Guidelines."
 - 2. GANA - Glass Association of North America (formerly FGMA) Glazing Manual.
 - a. Tempering Division - Engineering Standards Manual
 - 3. TM3000 - Recommended Practices for Vertical and Basic Field Glazing of Organically Sealed Insulating Glass Units
- B. Glass Standards
- 1. ASTM C1036 Standard Specification for Flat Glass (Formerly Federal Spec. DD-G-451d)

2. ASTM C1048 Standard Specification for Heat Treated Flat Glass, Heat Strengthened and Fully Tempered Coated and Uncoated Glass. (Replaces DD-G-1403)
 3. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass
 5. ASTM E773 Seal Durability of Sealed Insulating Glass Units
 6. ASTM E774 Sealed Insulating Glass Units
 7. ASTM E546 Test Method for Frost Point of Sealed Insulating Glass Units
 8. ASTM E576 Test Method for Dew/Frost Point of Sealed Insulating Glass Units in Vertical Position
- C. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.
1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.
- D. Fire-Resistive Glazing Products for Door Assemblies: Products identical to those tested per ASTM E 152, labeled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- E. Insulating Glass Certification Program: Provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of inspecting and testing agency indicated below:
1. Insulating Glass Certification Council (IGCC).
- F. Glazier Qualifications: Engage an experienced glazier with Class CBA certification and who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.
- G. Single-Source Responsibility for Glass: Obtain glass from one source for each product indicated below:
1. Primary glass of each (ASTM C 1036) type and class indicated.
 2. Heat-treated glass of each (ASTM C 1048) condition indicated.
 3. Insulating glass of each construction indicated.
 4. Coated Glass ASTM C1376
- H. Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.
- I. Preconstruction Compatibility and Adhesion Testing: Submit to sealant manufacturers, samples of each glass, gasket, glazing accessory, and glass-framing member that will contact or affect glazing sealants for compatibility and adhesion testing as indicated below:

1. Use test methods standard with sealant manufacturer to determine if priming and other specific preparation techniques are required for rapid, optimum glazing sealants adhesion to glass and glazing channel substrates.
 2. Testing is not required when glazing sealant manufacturer can submit required preparation data that is acceptable to Architect and is based on previous testing of current sealant products for adhesion to and compatibility with submitted glazing materials.
- J. Substitute Requests For A Specified Entity
1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
 2. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
 3. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
 4. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.

5. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.

6. The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.

7. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:
 - a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.

8. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
 - a. That the specifications have been read and are understood,

- b. That the entity being submitted meets or exceeds all provisions of the specifications,
- c. That all submitted information is true and accurate,
- d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
- e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.9 WARRANTY

- A. General: Warranties specified in this Article 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 requirements of the Contract Documents.
- B. Manufacturer's Warranty on Insulating Glass: Submit written warranty signed by manufacturer of insulating glass agreeing to furnish replacements for insulating glass units that deteriorate as defined in "Definitions" article, f.o.b. point of manufacture, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, protecting, and maintaining practices contrary to glass manufacturer's published instructions.
 - 1. Warranty Period: Manufacturer's standard but not less than 10 years after date of Substantial Completion.
 - 2. Provide single source warranty for fabricated glass products.
 - 3. Warranty Period For Products:
 - a. Insulating - Vertical - 10 years

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements.
- B. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Class 1 (clear) unless otherwise indicated.
 - a. AFG Glass.
 - b. Guardian Industries Corp.
 - c. Pilkington
 - d. PPG Industries, Inc.
 - e. Viracon

2.2 GLASS

- A. General
 - 1. Horizontal Distortion: All tempered glass, including tinted, coated, and uncoated, shall have minimum horizontal distortion with minimum visible roller marks. All visible roller marks shall be in horizontal and run with the width of the glass. Horizontal distortion shall not exceed 0.005 inch as measured with a roller wave gauge.
 - 2. Specified glass performance is the minimum acceptable performance. Final glass tint will be as selected by the Architect from manufacturer's full range of standard and custom tints.
- B. Clear Tempered: ASTM C1048, Type 1 (transparent Float), Quality q3 (glazing select), Condition A (Uncoated), Kind FT (fully tempered), Class 1 (clear).
- C. Tinted Tempered: 1/4 Inch thick tinted float glass, ASTM C1048. Type 1 (transparent, flat), Class 2 (heat absorbing, light reducing), kind FT (fully tempered), Condition A (uncoated), Quality Q3 (glazing select). Tint shall be as selected by the Architect.
- D. Safety Laminated Glass: Two sheets of ASTM C 1172 Kind LT (laminated tempered), Class 1 (clear) with an interlayer of polyvinyl butyl sheet of 0.030 inch Saflex by Monsanto Co. Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets. Total thickness shall be 1/4 inch. Laminated glass shall comply with CPSC 16-CFR, Part 1201.
- E. Fire Resistant Glass
 - 1. Non-Barrier To Radiant Heat: For glass that, according to applicable model building code and requirements of local governing authorities, does not need to be a barrier to radiant heat or meet to ASTM E119 or UL 263. Fire Resistant Glass under this category shall have the following properties:
 - a. Manufacturer: FireLite NT by Technical Glass Products or a reviewed substitute.
 - b. Appearance: Clear.
 - c. Thickness: As required to meet label of the opening, but not less than 3/16 inch.
 - d. Visible Light Transmission: 88%.

- e. Visible Reflection: 9%.
 - f. Fire Rating: 20 minutes up to 3 hours with hose stream test.
 - g. Impact Safety Rating: Meets ANSI Z97.1 and CPSC 16CFR1201 (Cat. 1 and 2).
 - h. Positive Pressure: Pass test standard UL10C, UBC 7-2, and UBC 7-4.
 - i. Withstand thermal shock
 - j. Warranty: 3 years
2. Barrier to Radiant Heat: Where applicable model building code and of local governing authorities require glass to be a barrier to radiant heat and meet ASTM E119 and UL 263, provide clear, meeting ANSI Z97.1 and CPSC 16CFR 1201 impact resistant safety standards. Pilkington Pyrostop, SCHOTT Pyran Platinum F or a reviewed substitute. Glass must be able to successfully pass the hose stream test. Glass thickness shall be based on the required rating and assembly as indicated in the following table.

Rating	Thickness (in.)	Type Assembly	Max. Exposed Area (sq. in.)	Max. Width Exposed Area (in.)
45 Min.	3/4 inch	Doors	1080	36
60 Min.	13/16	Walls	4290	78
60 Min	1-1/16	Doors	1080	36
		Walls	4290	78
90 Min.	1-1/2	Doors	1080	36
		Walls	1860	47
120 Min	2-1/8	Walls	3456	95

2.3 GLAZING TYPES

- A. Insulating Glazing: 1-inch thick, sealed, insulating, complying with ASTM E774, IGCC, Class CBA.
 - 1. Tinted Tempered
 - a. Exterior Lite: Tinted, tempered. To Match Existing
 - b. Interior Lite: Clear tempered.
 - 2. Insulating Space: 1/2 Inch thick.
 - 3. Sealing System: Dual seal, primary and secondary, manufacturer’s standard.
 - 4. Spacers: Manufacturer’s standards.
- B. Single Glazing:
 - 1. Tempered: 1/4 inch tinted tempered glass
 - 2. Clear: 1/4 inch, tempered, clear.

2.4 ELASTOMERIC GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.
 3. Colors: Provide color of exposed joint sealants to comply with the following:
 - a. Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.
- B. Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, including those referencing ASTM classifications for Type, Grade, Class and Uses.

2.5 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent, nonstaining and nonmigrating in contact with nonporous surfaces, with or without spacer rod as recommended by tape and glass manufacturers for application indicated, packaged on rolls with a release paper backing, and complying with AAMA 800. Select applicable product from following list to glazing conditions:
1. AAMA 804.1.
 2. AAMA 806.1.
 3. AAMA 807.1.
- B. Expanded Cellular Glazing Tape: Closed-cell, polyvinyl chloride foam tape, factory coated with adhesive on both surfaces, packaged on rolls with release liner protecting adhesive, and complying with AAMA 800 for product 810.5.
- C. Products: Subject to compliance with requirements, provide one of the following:
1. Back-Bedding Mastic Glazing Tape Without Spacer Rod:
 - a. For moderate movement (AAMA 804.1)
 - 1) PTI 303 Glazing Tape (shimless), Protective Treatments, Inc.

- 2) S-M 5700 Poly-Glaze Tape Sealant, Schnee-Morehead, Inc.
- 3) Tremco 440 Tape, Tremco Inc.
- b. For large movement (AAMA 807.1)
 - 1) Extru-Seal, Pecora Corp.
 - 2) PTI 606 Architectural Sealant Tape, Protective Treatments, Inc.
- c. For limited movement (AAMA 806.1)
 - 1) Dyna-Seal, Pecora Corp.
 - 2) PTI 626 Architectural Sealant Tape, Protective Treatments, Inc.
 - 3) S-M 5710 H.P Poly-Glaze Tape Sealant, Schnee-Morehead, Inc.
 - 4) SST-800 Tape, Tremco, Inc.
2. Back-Bedding Mastic Glazing Tape With Spacer Rod:
 - a. For moderate movement.
 - 1) PTI 303 Glazing Tape (with shim), Protective Treatments, Inc.
 - 2) Pre-shimmed Tremco 440 Tape, Tremco, Inc.
 - 3) PTI 606 Architectural Sealant Tape, Protective Treatments, Inc.
3. Expanded Cellular Glazing Tape:
 - a. Norseal V-980 Closed-Cell Glazing Tape, Norton Company.

2.6 GLAZING GASKETS

- A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.
- B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, and compatible with sealants complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
 1. Neoprene, ASTM C 864.
 2. EPDM, ASTM C 864.
 3. Silicone, ASTM C 1115.
 4. Thermoplastic polyolefin rubber, ASTM C 1115.
- C. Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, and compatible with sealants complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:
 1. Neoprene.

2. EPDM.
3. Silicone.
4. Thermoplastic polyolefin rubber.

D. Manufacturers: Subject to compliance with requirements, provide products by one of the following companies.

1. Lock-Strip Gaskets:
 - a. Stanlock Div., Griffith Rubber Mills.
2. Preformed Gaskets:
 - a. Advanced Elastomer Systems, L.P.
 - b. Schnee-Morehead, Inc.
 - c. Tremco, Inc.

2.7 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- C. Glazing Spacer: Warm-edge spacer thermally broken aluminum spacer for sealed insulating glass units. Material shall consist of polyurethane polymer and anodized aluminum in color as selected by the Architect. Thickness as required to meet required insulating space. Azon USA, Inc. or reviewed substitute.
- D. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.
- E. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- F. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side-walking).
- G. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonextruding, nonoutgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.
- H. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistive rating.

2.8 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.
- B. Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine glass framing, with glazier present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.3 GLAZING, GENERAL

- A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions as indicated on Drawings provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

- C. Protect glass from edge damage during handling and installation as follows:
1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.
 2. Remove damaged glass from Project site and legally dispose of off site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass sizes larger than 50 unites inches (length plus height) as follows:
1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.
 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that when compressed by glass their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously but not in one continuous length. Do not stretch tapes to make them fit opening.
- C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each lite is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

- A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.
- B. Secure compression gaskets in place with joints located at corners to compress gaskets producing a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- C. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel weep systems until sealants cure. Secure spacers in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

3.7 LOCK-STRIP GASKET GLAZING

- A. Comply with ASTM C 716 and gasket manufacturer's printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

3.8 INSPECTION GUIDELINES FOR COATED GLASS

- A. Glass shall comply with ASTM C1376 and the following criteria when viewed from a bright and uniform background:
- B. Pinholes
 1. Inspect from 10 feet
 2. Pinholes larger than 1/16 inch diameter are unacceptable
 3. Large clusters or close spacing of smaller pinholes are not acceptable in any area that a person would normally look through. Clusters are acceptable out of the normal viewing area.
- C. Scratches
 1. Inspect from 10 feet
 2. Scratches up to 3 inches long are acceptable.
 3. Larger scratches are acceptable only if they are within 3 inches of the edge of the glass.
 4. Concentrated scratches or abraded areas are not acceptable anywhere.
- D. Reflectance and Transmission:
 1. Inspect from 10 feet
 2. Uniformity: Some streaking or mottled appearance is acceptable
 3. Distortion: Distortions of reflected objects are acceptable.
- E. Spandrel Glass:
 1. Inspect from 15 feet under natural daylight conditions.
 2. Slight variance in color and reflectance when viewed against a dark uniform back ground is acceptable.
 3. Pinholes and scratches viewed in reflectance are acceptable if they are not obvious.

3.9 PROTECTION AND CLEANING

- A. Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

- B. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.
- E. Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08 80 00

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

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. Nonload-bearing steel framing members for gypsum board assemblies.
 - 2. Correcting all defects including those highlighted by the primer installed by the painting contractor.
 - 3. Ceiling grids
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Building Insulation" for thermal insulation.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

- A. Fire Resistance: Provide gypsum board assemblies with fire-resistance ratings indicated.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.
- C. Shop Drawings showing locations, fabrication, and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other units of Work.

1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer, unless otherwise indicated.
- B. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.
- C. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- D. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Deflection and Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated is labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- E. Seismic Requirements: Materials and installation for wall, partitions, and ceilings shall comply with seismic requirements for the specific seismic requirements for the seismic zone where the project is located.
- F. Mockup:
 - 1. Prior to installing wallboard, construct mockup to verify selections made under sample submittals and to demonstrate aesthetic effects as well as other qualities of materials and execution. Build mockups to comply with the following requirements, using each type of specified materials and procedures for final unit of Work.
 - a. Notify Architect and materials manufacturer one week in advance of the dates and times when mockups will be constructed.
 - b. Locate mockups on site in the locations indicated or, if not indicated, as directed by Architect. Construct of sufficient size to allow inclusion of following installations:
 - c. Build full size mockups for each type of installation.
 - e. Protect accepted mockups
 - f. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.. When directed by the Architect, approved mockups may become a part of the completed work.
 - (1) Acceptance of mockups is for color, texture, terminations, aesthetic qualities of workmanship; and other material and construction qualities specifically determined by Architect. Show the following: Framing, fastening, seams, trim, finishing, and terminations.
 - (2) Acceptance of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.

- (3) If mockup is not a part of the actual construction, demolish and remove mockups from Project site, when directed by the Architect.
 - (4) Accepted mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.
 2. Judging
 - a. Evaluate under normal lighting conditions that are to be expected for the area. Lighting can be natural, artificial, parallel or perpendicular to the surfaces being judged. Parallel lighting is preferred for evaluating surfaces to receive a painted finish.
 - b. Evaluate ceiling from standing position on the floor.
 - c. Evaluate walls from 6 feet away.
- F. Installation Compliance: As a minimum, comply with manufacturer's instructions, ASTM C 754, ASTM 840, GA 216, GA 214, and all applicable publications provision of all applicable Gypsum Association Publications.
- G. Pre-Installation Conference:
 1. Conduct a pre installation conference with the General Contractor, painting contractor, drywall contractor, and Architect in attendance. Discuss and reach agreement on
 1. Staging and storing of drywall
 2. Environmental requirements for storing and installing drywall
 3. Inspection, judging, and approval provisions and procedures, and when and at what stages of installation they will be performed.
 4. Various levels of drywall finish required
 5. Taping requirements
 6. acceptable imperfections.
 7. Mock-up locations
 8. Framing considerations
 9. Responsibilities of the painting contractor
 10. Responsibilities of the drywall contractor
 11. Requirements of the painting contractor
 12. How drywall hanging, joint work, taping, and finishing stages will be signed off and approved before proceeding to the next stage and the levels of acceptance of each stage.
 13. The painting contractor will evaluate the drywall conditions after primer application and drywall contractor will correct all defects including those highlighted by the primer.
- H. Substitute Requests For A Specified Entity
 1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request

forms that may be included in the Project Manual or Contract Documents, or otherwise provided.

2. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .
3. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
4. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
5. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.

6. The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
7. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:
 - a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item and the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
8. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
 - a. That the specifications have been read and are understood,
 - b. That the entity being submitted meets or exceeds all provisions of the specifications,
 - c. That all submitted information is true and accurate,
 - d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
 - e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.
- C. Steel framing and related accessories shall be stored and handled in accordance with the A.I.S.I.'s "Code of Standard Practice."

1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.
- B. Do not install gypsum wall board, sheet/board materials, or absorptive listed in this section until the structure is completely in the dry, including roof, windows, and doors are in place.
- C. Room Temperatures: In cold weather, use controlled heat to maintain temperature between 55 and 70 deg F before, during, and after installation and during taping, and finishing operations. Maintain these temperature conditions continuously after until permanent heating is in operation. Propane, kerosene, or salamander type heaters or heaters that produce fumes, smoke, or moisture are not acceptable.
- D. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or a reviewed substitute. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Steel Framing and Furring:
 - a. CLARKWESTERN Building Systems
 - b. Consolidated Systems, Inc.
 - c. Dietrich Industries, Inc.
 - d. Marino/Ware (formerly Marino Industries Corp.).
 - e. National Gypsum Co.; Gold Bond Building Products Division. (studs: shaftwall only)
 - 2. Gypsum Board and Related Products or a reviewed substitute:
 - a. Certainteed
 - b. Georgia-Pacific Corp.

- c. Lafarge
- d. National Gypsum Co.; Gold Bond Building Products Division.
- e. United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR FURRED CEILINGS

- A. General: Provide components complying with ASTM C754 for materials and sizes, unless indicated otherwise.
- B. Steel Studs for Furring Channels: Meeting requirements of ASTM C645-08; C-channel, roll-formed from hot-dipped galvanized steel; complying with ASTM A1003 and ASTM A653 G40 or equivalent corrosion resistant coating with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch-wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 - 1. Thickness: As recommended by the steel framing manufacturer to comply with framing spans indicated on the Drawings, specified loads, and deflection. However, minimum 22 gauge for interior and 16 gauge for exterior, unless otherwise indicated.
 - 2. Depth: As indicated.
 - 3. Protective Coating: ASTM A 653 and ASTM A 1003, G 40 hot-dip galvanized coating.
- C. Steel Rigid Furring Channels: ASTM C 645-08, hat shaped, depth of 7/8 inch and minimum thickness of base (uncoated) metal as follows:
 - 1. Thickness: 22 gauge for interior and 16 gauge for exterior, unless otherwise indicated.
 - 2. Protective Coating: ASTM A 924, G 40 hot-dip galvanized coating.
 - 3. Provide with required accessories, bridging, Z-strips, etc. for a complete installation.
- D. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross-furring members that interlock to form a modular supporting network. Provide hanger wire, rod, clamps, and accessories to expected design ceiling loads. State loads in the shop drawings.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. General: Provide steel framing members to comply with framing height and spacing indicated on the Drawings, specified loads and deflection, and framing sizes. However, minimum 22 gauge for interior and 16 gauge for exterior complying with the following requirements. Equivalent gauge framing is not an acceptable substitute for the specified gauge. Equivalent gauge framing found on the project site will be removed and replaced with the specified gauge at the Contractor's expense - even if installed.
 - 1. Component Sizes and Spacing: As indicated but not less than required to comply with ASTM C574 under the following maximum deflection and lateral loading conditions:
 - a. Maximum Deflection: 1/240 at 5 lb per sq. ft.

3. Brady Innovations ProX Header®

H. Channel Bridging and Bracing: U-Channel Assembly; Base metal thickness of .0538 inch (1.37mm) and minimum ½ inch (12.7mm) wide flanges.

1. Subject to compliance with requirements, provide one of the following:
2. Dietrich Metal Framing: Spazzer® 9200 Bridging and Bracing Bar
3. U-Channel Assembly: [3/4 inches] [1-1/2 inches] [2 inches]
 - a. Dietrich Metal Framing; EasyClip™ U-Series™ Clip Angle or equivalent.

I. Resilient Channel: ½ inch [12.7mm] deep, steel sheet members designed to reduce sound transmission, galvanized G40.

1. Subject to compliance with requirements, provide Dietrich Metal Framing Resilient Channel RCSD or RCUR 20 gauge.

J. Flat Strap and Backing Plate: Sheet for blocking and bracing in length and width indicated.

1. Subject to compliance with requirements, provide Dietrich Metal Framing: Danback™ Fire Treated Wood Backing Plate D16F.
2. Galvanized Sheet Steel.

2.4 WALL PRODUCTS

A. GYPSUM BOARD PRODUCTS

1. General: All gypsum wall board to be gypsum board consisting of a treated gypsum core conforming with ASTM C630. Products shall have a facer and core treated with a mold inhibitor or constructed of a cellulose-free material and shall score no less than 10 per ASTM D3273. Comply with types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application. Sheetrock Mold Tough by USG or DensArmor Plus by Georgia Pacific or a reviewed substitute that meets or exceed specified criteria.
 - a. Widths: Provide gypsum board in widths of 48 inches.
 - b. Thickness: As indicated; or if not indicated, then 1/2 or 5/8 inch to comply with ASTM C840 for applicable, support spacing, partition height, and number of layers.
 - c. Type: Type X. Non-sag for ceilings
 - d. Edges: Tapered.
2. Gypsum Board Base Layer(s) for Multilayer Applications: Gypsum wallboard complying with general requirements and as follows:
 - a. Type: Type X where indicated or required for fire-resistance-rated assemblies.
 - b. Type: Sag-resistant type for ceiling surfaces, unless otherwise indicated.
 - c. Edges: Square, nontapered.
 - d. Thickness: As indicated.

4. Water-Resistant Gypsum Backing Board: Water resistant core with glass mat moisture protection coating and glass mats both sides. The face side shall be surfaced with heat-cured copolymer water resistant coating and comply with ASTM C 1178, Type X. Dens-Shield Tile Backer" by Georgia-Pacific Corp. or a reviewed substitute.
5. Impact Resistant: Type X gypsum core, 5/8 inch thick, tapered edge, Hi-Impact XT by National Gypsum or Fiberock VHI by United States Gypsum (USG) or a reviewed substitute with following performance criteria:
 - a. Surface Abrasion Resistance: [0.010 inch, maximum] when tested in accordance with ASTM D 4977 Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion
 - b. Indentation Resistance: [0.050 inch, maximum] when tested in accordance with ASTM D 5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 - c. Soft Body Impact: [300 ft-lbf, minimum] when tested in accordance with ASTM E 695 Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading
 - d. Hard Body Impact: [150 ft-lbf, minimum] in accordance with ASTM C 1629 Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels
 - e. Moisture Absorption: Max. 5% by weight after 24 hours immersion per ASTM C473.
 - f. Mold/Mildew Resistance: Min 10 per ASTM D3273.

2.5 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
 1. Material: Formed metal, plastic or metal combined with paper to comply with the following:
 - a. Material: Steel sheet zinc coated by hot-dip process or rolled zinc.
 - b. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 2. Shapes
 - a. Cornerbead on outside corners, unless otherwise indicated.
 - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
 - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
 - d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
 - e. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Use pressure-sensitive, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
- C. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for specific finish levels.
 - 1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
 - 2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer.
 - 3. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.
 - 4. For topping compound, use sandable formulation.
- D. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended specific finish levels.
 - 1. Ready-Mixed Formulation: Factory-mixed product.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.
 - 2. Job-Mixed Formulation: Powder product for mixing with water at Project site.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.

2.7 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834, has a flame spread and smoke developed of less than 25 per ASTM E84 and complies with the following requirements:

1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

- B. Products: Subject to compliance with requirements, provide one of the following:
 - a. PL Acoustical Sealant; ChemRex, Inc.; Contech Brands.
 - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
 - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Laminating Adhesive: As recommended by the gypsum wall board manufacturer to laminate panels.
- C. Fastening Adhesive: As recommended by the gypsum wall board manufacturer to fasten panel to studs.
- D. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.
- E. Steel drill screws complying with ASTM C 1002 for the following applications:
 1. Fastening gypsum board to steel members less than 0.033 inch thick.
 2. Fastening gypsum board to wood members.
- F. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.
- G. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
- H. Foam Gaskets: Closed-cell vinyl foam adhesive-backed strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit metal stud size indicated.
- I. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M, type as required by fire-resistant assembly indicated.
- J. Accessories: Corner beads, edge trim, and control joints of material and shapes specified in the Division 9 Section referenced below that comply with gypsum board shaft-wall assembly manufacturer's recommendation for application indicated.
- K. Gypsum Wallboard Joint Treatment Materials: Provide materials complying with ASTM C 475 and recommendations of gypsum board shaft-wall assembly manufacturer for the applications indicated, and as specified in Division 9 Section "Gypsum Board Assemblies."

- L. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum boards of type indicated.
- M. Steel drill screws complying with ASTM C 1002 for fastening gypsum board to steel members less than 0.03 inch thick.
- N. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.
- O. Runner Fasteners: Power-driven fasteners of type indicated below and of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of runners, fasteners, or structural substrates where anchors are embedded.
 - 1. Powder-Actuated Fasteners: Provide powder-actuated fasteners with the capability to sustain, without failure, a load equal to 10 times that imposed by shaft-wall assemblies, as determined from testing per ASTM E 1190 by a qualified testing agency.
 - 2. Postinstalled Expansion Anchors: Where indicated, provide expansion anchors with the capability to sustain, without failure, a load equal to 5 times that imposed by shaft-wall assemblies, as determined from testing per ASTM E 488 by a qualified independent testing agency.
- P. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
 - 1. Fire rated partitions to be installed in accordance with UL V450 or UL V438 or UL U419.
- B. Install supplementary framing, blocking, reinforcing, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, casework, heavy trim, door stops, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
 - 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
 - 2. Where partition framing and wall furring abut structure, except at floor.
 - a. Install deflection track top runner to attain lateral support and avoid axial loading.
 - b. Install deflection and firestop track top runner at fire-resistance-rated assemblies where indicated.
 - 1) Attach jamb studs at openings to tracks using manufacturer's standard stud clip.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.
- E. Curved Sections for Partitions: install according to manufacturer's instructions to the radius indicated on the Drawings.
- F. Reglets: Install reglets according to manufacturer's instructions where and as indicated and to the shapes and dimensions shown on the drawings. Allow for proper installation and finishing of gypsum wallboard.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and

- hangers to support ceiling loads within performance limits established by referenced standards.
3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
 4. Secure flat, angle, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
 5. Do not attach hangers to steel deck tabs.
 6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
 8. Seismic Requirements: Provide sway-brace suspended steel framing with hangers used for support as required for specific seismic zone.
- B. Install suspended steel framing components in sizes and at spacings indicated, but not less than that required by the referenced steel framing installation standard.
1. Wire Hangers: 48 inches (1219 mm) o.c.
 2. Carrying Channels (Main Runners): 48 inches (1219 mm) o.c.
 3. Furring Channels (Furring Members): 24 inches (610 mm) o.c.
- C. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring or grid suspension members are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) as measured both lengthwise on each member and transversely between parallel members.
- D. Wire-tie or clip furring members to main runners and to other structural supports as indicated.
- E. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
1. Do not attach steel framing, runners, etc to metal roof deck except at fire walls. Provide supplementary steel sections as necessary to attach steel framing to structural system.
 2. Where studs are installed directly against exterior walls, install asphalt felt strips or foam gaskets between studs and wall.
- B. Installation Tolerances: Comply with the most stringent of following tolerances or industry standards and local governing codes:
1. Wood framing shall be straight and true.

2. Framing member shall be plumb and level within 1/8 inch in 8 feet prior to attaching gypsum any siding or paneling including gypsum panels.
 3. Framing members shall not vary more than 1/8 inch from the plane of the faces of adjacent members.
 4. Completed framing installation shall allow gypsum drywall to be installed in accordance with Gypsum Association GA 214 and 214, and ASTM C840.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
1. Cut studs 1/2 inch short of full height to provide perimeter relief.
- D. Terminate partition framing at suspended ceilings where indicated.
- E. Install steel studs and furring in sizes and at spacings indicated.
1. Single-Layer and Multi-layer Construction: Space studs 16 inches o.c., unless otherwise indicated.
- F. Install steel studs so flanges point in the same direction and leading edge or end of each gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
- G. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
1. Install 2 studs at each jamb, unless otherwise indicated.
 2. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint.
 3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- H. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.
- I. Install thermal insulation as follows:
1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
 2. Erect insulation vertically and hold in place with Z-furring members spaced 600 mm o.c.
 3. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

4. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

- J. Blocking: Provide proper blocking, supports, and reinforcement behind all points to receive applied or suspended loads such as handrails, toilet accessories, coat hooks, door stops, handrails, cabinets, casework, wall and ceiling TV monitor brackets and supports, projection screens, etc. Reinforcement shall be rigid enough to allow drawers loaded to rated capacity to be fully extended without causing casework to sag, droop, bind, or other distortions and to not pull away from the mounts or fasteners and without causing fasteners to loosen or pull from mounts or walls.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216. The following schedule includes, but is not limited to, the following gypsum applications:
 1. Normal Areas Including Inside Surfaces of Exterior Walls: Paperless gypsum wall board
 2. Ceilings And Horizontal Installations: Sag resistant
 3. In All Moist Areas, Behind All Sinks And Commodes, And In Janitor Closets: Water Resistant Gypsum Backing Board.
 4. Walls Subject To Abuse Or Possible Accidental Impact: Impact Resistant board.
- B. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- C. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
- D. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- E. Attach gypsum panels to framing provided at openings and cutouts.
- F. Do not attach gypsum panels across the flat grain of wide-dimension lumber. Instead, float gypsum panels over these members using resilient channels or provide control joints to counteract wood shrinkage.
- G. Grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.

- H. Form control and expansion joints with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- I. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect open structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- J. Isolate perimeter of nonload-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
 - 1. Except for carpet finishes, maintain a 1/2 inch space between the bottom of gypsum board and the top of the finished floor.
- K. Floating Construction: Where feasible, including where recommended by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.
- L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
 - 1. Space screws a maximum of 12 inches o.c. for vertical applications.
- M. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.8 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application: Install gypsum wallboard panels as follows:
 - 1. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
 - 2. Wet Areas: Install moisture resistant gypsum board in moist and damp areas and where indicated on the Drawings, including restrooms, kitchen areas, locker rooms, janitors closets, etc.).
 - 3. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless indicated otherwise.
 - 4. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

- B. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
 - 1. Fasten with screws.

- C. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and gypsum wallboard face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints. Stagger joints on opposite sides of partitions.
 - 1. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.

- D. Multilayer Fastening Methods: Apply base layers of gypsum panels and face layer to base layers as follows:
 - 1. Fasten both base layers and face layers separately to supports with screws.
 - 2. Fasten base layers with screws and face layer with adhesive and supplementary fasteners.
 - 3. Fasten base layers to wood supports with nails and face layer with adhesive and supplementary fasteners.

3.9 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

- B. Install cornerbead at external corners.

- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
 - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting members.
 - 2. Install L-bead where edge trims can only be installed after gypsum panels have been erected.

- D. Control Joints: Install control joints according to Gypsum Association Publication GA-216, ASTM C 840, and manufacturer's recommendations, and in specific locations approved by Architect for visual effect, and as follows:
 - 1. Walls (rated and non-rated): Install control joints as follows:
 - a. Where a partition or wall traverses a building construction joint such as an expansion joint, seismic stress relief joints, and building control elements.
 - b. Where a wall or partition extends in a continuous straight plane for more than 30 linear feet

 - 2. Ceilings: Install control joints as follows:

- a. Traversing A Building Construction Joint: Install control joints where ceiling traverses a building construction joint such as an expansion joint, seismic stress relief joints, and building control elements.
- b. Interior Ceilings Constructed With Perimeter Stress Relief: Install control joints so that the distance between control joints does not exceed 50 linear feet and area does not exceed 2500 square feet.
- c. Interior Ceilings Constructed Without Perimeter Stress Relief; Install control joints so that the distance between control joints is not more than 30 linear feet and total area between control joints is not more than 900 square feet.
- d. Exterior Ceilings And Soffits: Install control joints so that the distance between control joints is not more than 30 linear feet and total area between control joints is not more than 900 square feet.
- e. Where Ceiling Framing Members Change Direction: Install a control joint or intermediate blocking.

3.10 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of specified gypsum board finish.
- B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
- C. Apply joint tape over gypsum board joints, except those with trim accessories having flanges not requiring tape to prevent cracks from developing in joint treatment at flange edges. .
- D. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
- E. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 1. Level 4 for gypsum board surfaces for surfaces to receive wall covering.
 2. Level 5 for gypsum board surfaces for painted surfaces.
- F. Use one of the following joint compound combinations as applicable to the finish levels specified:
 1. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Sandable, setting-type joint compound.
 2. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 3. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.

4. Embedding and First Coat: Job-mixed, drying-type, taping compound. Fill (Second) Coat: Job-mixed, drying-type, topping compound. Finish (Third) Coat: Job-mixed, drying-type, topping compound.
 5. Embedding and First Coat: Job-mixed, drying-type, all-purpose compound. Fill (Second) Coat: Job-mixed, drying-type, all-purpose compound. Finish (Third) Coat: Job-mixed, drying-type, all-purpose compound.
 6. Embedding and First Coat: Setting-type compound. Fill (Second) Coat: Setting-type compound. Finish (Third) Coat: Job-mixed, drying-type, all-purpose compound.
- G. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
- H. Where Level 5 gypsum board finish is required, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories; and apply a thin, uniform skim coat of joint compound over entire surface. For skim coat, use joint compound specified for third coat, or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects, tool marks, and ridges and ready for decoration.

3.12 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09 21 16

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Evaluation reports.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to NVLAP.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Acoustical ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
 - 2. Smoke-Developed Index: 450 or less.

2.2 ACOUSTICAL PANEL CEILINGS, GENERAL

- A. Glass-Fiber-Based Panels: Made with binder containing no urea formaldehyde.
- B. Acoustical Panel Standard: Comply with ASTM E 1264.
- C. Metal Suspension System Standard: Comply with ASTM C 635.
- D. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

2.3 ACOUSTICAL PANELS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Tegular mineral fiber white 24" by 24" ceiling tile to match existing ceilings or comparable product from available manufactures including but not limited to:
 - 1. Armstrong World Industries, Inc.
 - 2. CertainTeed Corp.
 - 3. Chicago Metallic Corporation.
 - 4. Tectum Inc.
 - 5. USG Interiors, Inc.; Subsidiary of USG Corporation.
- B. Color: White. Basis of Design to be verified with final selection and approved by Architect and Owner.
- C. Edge/Joint Detail: Tegular. Basis of Design to be verified with final selection.
- D. Thickness: 5/8 inch (15 mm). Basis of Design to be verified with final selection.
- E. NRC: 0.50
- F. CAC: 35
- G. Modular Size: As indicated on Drawings.

2.4 METAL SUSPENSION SYSTEM Copy this article and re-edit for each product.

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Armstrong World Industries, Inc.
 - 2. CertainTeed Corp.
 - 3. Chicago Metallic Corporation.
 - 4. USG Interiors, Inc.; Subsidiary of USG Corporation.
- B. Narrow-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip

galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 9/16-inch- (15-mm-) wide metal caps on flanges. Basis of Design to be verified with final selection.

1. Structural Classification: Intermediate duty system.
 2. End Condition of Cross Runners: butt-edge type.
 3. Face Design: Flat, flush.
 4. Cap Material: Steel or aluminum cold-rolled sheet.
 5. Cap Finish: Painted white.
- C. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install acoustical panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

END OF SECTION 09 51 13

SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Resilient base.
 2. Resilient stair accessories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. FloorScore Compliance: Resilient stair accessories shall comply with requirements of FloorScore certification.

2.2 THERMOSET-RUBBER BASE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:(Basis of Design: Johnsonite, Traditional)
1. AB; American Biltrite.
 2. Allstate Rubber Corp.
 3. Armstrong World Industries, Inc.
 4. Burke Mercer Flooring Products, Division of Burke Industries Inc.
 5. Flexco.
 6. Johnsonite; A Tarkett Company.
 7. Roppe Corporation, USA.
- B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
1. Style and Location:

- a. Style A, Straight: Provide in areas with carpet.
 - b. Style B, Cove: Provide in areas with resilient flooring.
 - c. Style C, Butt to: Provide in areas indicated.
- C. Thickness: 0.125 inch (3.2 mm).
- D. Height: 4 inches.
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Colors: As selected by Architect from full range of industry colors.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- 1. Adhesives shall have a VOC content of 50 g/L or less except that adhesive for rubber stair treads shall have a VOC content of 60 g/L or less.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.
- 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. Job-Formed Corners:
 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6 inches (76 mm) in length.
 - a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6 inches (76 mm) in length.
 - a. Miter or cope corners to minimize open joints.

3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Stair Accessories:
 1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
 2. Tightly adhere to substrates throughout length of each piece.
 3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.
 1. Apply three coat(s).
- C. Protection: Protect or cover resilient products, in a manner approved by the manufacturer, in areas subject to wear and foot traffic.
 1. Keep protection in place until Substantial Completion.

END OF SECTION 09 65 13

SECTION 09 68 00 - CARPET

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 carpet, and installation.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 03 Sections for curing compounds and other concrete treatments compatibility with carpet adhesives.
 - 2. Division 09 Section "Resilient Base and Accessories" for materials and installation.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data for each type of carpet material and installation accessory specified. Submit manufacturer's printed data on physical characteristics, durability, fade resistance, and fire-test-response characteristics. Submit methods of installation for each type of substrate.
- C. Shop Drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Indicate the following:
 - 1. Carpet type, color, and dye lot.
 - 2. Locations where dye lot changes occur.
 - 3. Seam locations, types, and methods.
 - 4. Type of subfloor.
 - 5. Type of installation.
 - 6. Pattern type, repeat size, location, direction, and starting point.
 - 7. Pile direction.
 - 8. Type, color, and location of insets and borders.
 - 10. Type, color, and location of edge, transition, and other accessory strips.
 - 11. Transition details to other flooring materials.

- D. Samples for initial selection in the form of manufacturer's color charts or Samples of materials showing the full range of colors, textures, and patterns available for each type of carpet indicated.
- E. Samples for verification of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work. Label each sample with manufacturer's name, material type, color, pattern, and designation indicated on Drawings and carpet schedule. Submit the following:
 - 1. 12-inch- square Samples of each type of carpet material required.
 - 2. 12-inch Samples of each type of exposed edge stripping and accessory item.
 - 3. 6-inch Samples of each type of carpet cushion.
- F. Schedule of carpet using same room designations indicated on Drawings.
- G. Maintenance data for carpet to include in the operation and maintenance manual specified in Division 1. Include the following:
 - 1. Methods for maintaining carpet including manufacturer's recommended frequency for maintaining carpet.
 - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance. Include cleaning and stain-removal products and procedures.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who is certified by the Floor Covering Installation Board (FCIB) or who can demonstrate compliance with FCIB certification program requirements.
- B. Single-Source Responsibility: Obtain each type of carpet from one source and by a single manufacturer.
- C. Carpet Fire-Test-Response Characteristics: Provide carpet with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify carpet with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface Flammability: Passes CPSC 16 CFR, Part 1630.
 - 2. Flame Spread: 25 or less per ASTM E 84.
 - 3. Smoke Developed: 450 or less per ASTM E 84.
- D. Performance Characteristics: As follows:

1. Critical Radiant Flux Classification: Comply with NFPA 253 for the following Classes:
 - a. Class1: 0.45 W/sq. cm or greater.
 2. Dry Breaking Strength: Not less than 100 lbf (445 N) per ASTM D 2646.
 3. Resistance to Insects: Comply with AATCC-24
 4. Noise Reduction Coefficient (NRC): per ASTM C 423.
 5. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
 6. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
 7. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria; not less than 1-mm halo of inhibition for gram-negative bacteria; no fungal growth; per AATCC-174.
- E. Mockups: Before installing carpet, install mockups for each type of carpet installation required to demonstrate aesthetic effects and qualities of materials and execution. Install mockups to comply with the following requirements, using materials indicated for the completed Work:
1. Install mockups in the location and of the 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 installed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect's approval of mockups before starting work.
 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 6. Remove mockups when directed.
 7. Approved mockups may become part of the completed Work if undamaged at time of Substantial Completion.
- F. Substitute Requests For A Specified Entity
1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
 2. Include the following information on the cover page of the request:
 - a. Name of Project and project number as shown in the header of the specification
 - b. Date request is being made.
 - c. Name of person, company, and contact information of person requesting substitute.
 - d. Specification title and number and drawing number where the specified product is listed or shown.
 - e. Exact name of the specified entity and substitute entity. .

3. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
4. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals that are incomplete have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.
 - a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
5. Include the following information on all requests for substitutes:
 - a. Length of time the manufacturer has been in business.
 - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
 - c. Length of time the substitute entity has been on the market.
 - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
 - e. Who will install and service the substitute entity?
 - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
 - g. All required changes in the project design that will be required to incorporate the substitute entity.
 - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.
6. The manufacturer’s published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
7. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provisions will be considered incomplete, unacceptable, and will be rejected:

- a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
 - b. Submit certified data provided by an independent testing laboratory.
 - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
 - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
 - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria.
 - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
8. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the following requirements. Requests without the signature of a responsible person will be rejected.
- a. That the specifications have been read and are understood,
 - b. That the entity being submitted meets or exceeds all provisions of the specifications,
 - c. That all submitted information is true and accurate,
 - d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
 - e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 5: "Storage and Handling."
- B. Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- C. Store materials on-site in original undamaged packages, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, on continuous blocking that is off the ground.

1.7 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6: "Site Conditions."
- B. Space Enclosure and Environmental Limitations: Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is

complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Carpet Warranty: Submit a written warranty executed by carpet manufacturer and Installer agreeing to repair or replace carpet that does not meet requirements or that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
- C. Warranty Period: 5 years from date of Substantial Completion.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 - 1. Carpet: Before installation begins, furnish quantity of full-width units equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Carpet: Refer to the Drawings for manufacturer, style, fabric, color, pattern.
- B. Cushion: Non-flammable, polyurethane foam, as recommended by the carpet manufacturer for Traffic Classification of CCC Class II, heavy traffic. Cushion shall be of proper construction, density, thickness, and weight to prevent compression set when used in the intended application. Suitable for tack down or glue down installation. Moisture, mildew, and vermin resistant.
- C. Primer: Non-staining, as recommended by the carpet manufacturer.
- D. Underlayment and Patching Material: As recommended by the carpet manufacturer.
- E. Adhesive, Trim, and Accessories: As recommended by the carpet manufacturer

1. Adhesive: Adhesive shall be a release type formulated with a biocide recommended by carpet manufacturer to suit product and substrate conditions indicated. Adhesive shall ensure proper adhesion between carpet and adhesive and substrate and adhesive when carpet or adhesive are subjected to moisture from above or below. Adhesive shall comply with Carpet and Rug Institute emissions requirements.
 2. Adhesive shall be the type required to comply with warranty requirements and best for intended application.
 3. Use adhesives that comply with the following limits for low VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and are acceptable to the flooring manufacturer for the intended use:
 - a. Not more than 50 g/L.
 4. Water-resistant: Alkali and water resistant, formulated biocide-type of the type recommended by tile manufacturers to suit floor products and substrate conditions indicated. Adhesive shall not be affected by or break down when exposed to moisture. Adhesive shall ensure proper adhesion between floor covering and adhesive and between substrate and adhesive when floor covering or adhesive are subjected to moisture from above or below. Comply with low VOC requirements to meet LEED credit.
- F. Vapor Retarder: When the specified moisture tests or other moisture tests required by the floor covering finish manufacturer do not comply with the floor covering finish manufacturer's requirements or recommendations or when there are no requirements or recommendations, then with those specified in this Section, provide a vapor retarder system recommended by the floor covering finish manufacturer. Vapor retarder system shall be compatible with the floor covering finish, the adhesive, and shall reduce water vapor transmission to an acceptable level.

PART 3 - EXECUTION

3.1 INSPECTION AND TESTING

- A. Where test and inspection results (including, but not limited to, calcium chloride, relative humidity, sounding, and tests for level and flatness) indicate that moisture and surface conditions do not meet the floor finish manufacturer's requirements, the Contractor shall provide all labor, materials, and procedures to ensure that the substrate meets the floor finish manufacturer's requirements prior to installing the floor finish. Neither the Contract Sum or Contract Time will not be modified to meet this provision.
- B. Record results of all tests and send copies to the Owner and Architect. Show on a floor grid where each test was conducted and the test results. As a minimum, each report shall include the following information for each test that was conducted:
 1. Project name
 2. Date and Time of the Test
 3. Test Location (wall, room, etc) of test.
 4. Name of person conducting test
 5. Test results
 6. Conclusions and recommendations

- C. Examine subfloors and conditions, with installer and manufacturer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting performance of floor covering. Notify the Architect of conditions detrimental to the proper and timely completion of the work. Verify that there is no curing membrane on the floor. If there is a curing membrane or sealer on surfaces to receive floor covering, remove the membrane according to the manufacturer's instructions. Acid-removal is not an acceptable method to remove curing membrane or sealer.
 - 1. Substrate are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.
 - 2. Prior to installing floor system, fill moving joints and non-moving kerfs as recommended by the floor system manufacturer.
 - 3. Ensure that concrete does not contain aggregates that are soft or break down in liquids.
- D. Ensure that finished concrete complies with requirements specified in ASTM F710. Notify the Contractor and Architect, in writing, of all unacceptable conditions.
- E. Ensure variations in concrete slab levels do not exceed 1/8" in 10'. High spots shall be ground down and minor low spots shall be filled with epoxy or epoxy/sand mixture or a cementitious underlayment as recommended by the floor system manufacturer.
- F. The cementitious substrate shall be cured for a minimum of at least 28 days or as recommended by the floor system manufacturer, whichever is more stringent.
- G. Ensure concrete substrate on or below grade are adequately waterproofed beneath and at the perimeter of the slab, and at the earth side of below-grade walls. Care should be taken not to rupture the vapor barrier during the installation.
- H. Ensure the concrete has a compressive strength adequate for the activities for which the facility is designed, and the surface of the slab shall meet specifications including but not limited to, those contained herein. Slab shall properly cure and dry until adequately dry (under normal conditions 50-60 days). Slab shall be free of dust, dirt, grit, paint, grease, oil or any other foreign substances detrimental to the adhesion of the flooring.
- I. The concrete floor temperature will have to be maintained at a minimum of 75°F during the installation, and the General Contractor shall make sure that the moisture content does not exceed 3% (according R.M.A. testing method).
- J. Concrete: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Concrete substrates are dry and free of curing compounds, sealers, hardeners, efflorescence, chloride contamination, moisture, hydrostatic water pressure, excessive capillary water action, or water vapor transmission, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by floor covering manufacturer.
 - a. Prior to performing any tests, ensure that the bare concrete is exposed and that the concrete surfaces are clean and free of debris, dirt, oil, grease, debris, previous finishes and adhesives, or any other materials that may interfere with test results.

2. Concrete shall have a tensile strength of not less than 250 to 300 psi.
 - a. Deflection: As recommended by the floor finish manufacturer for the installation. If none is recommended, then deflection shall not exceed 1/360 of span when measured with a 300 pound concentrated load. Span is considered the longest distance across the floor finish installation as well as the smaller span between two joists and studs.
3. Concrete Surface Profile
 - a. Using the replicate rubber specimens inspect the concrete surface profile in accordance with ICRI Guide No. 03732. This should be performed once for every 100 square feet of surface area to be coated.
4. pH Testing
 1. Concrete shall have a pH range as recommended by the flooring manufacturer. If a range is not recommended, then a pH range of 7-9.

The pH of the concrete substrates will be measured using pH indicating papers. pH testing is to be performed once every 100 sq. ft. of surface area to be coated.
 2. Acceptable pH values shall be as measured by a full-range (1-12) color indicating pH paper with readable color calibrations and a scale at whole numbers (minimum). Use Hydrion Insta-Chek Jumbo 0-13 or 1-12 or equal. The paper shall be touched to the surface once using moderate finger pressure. The surface shall not be wiped or moved laterally to disturb the surface during pH testing. Following the one touch, lift the paper vertically to not “wipe” the surface. Compare the color indicated with the scale provided and record the pH.
 3. Note: If the surface of the concrete is dry, it is not possible to take a pH measurement. However, pH values are still important on dry surfaces. When a dry concrete substrate is encountered for a pH test, the surface where the pH test is to be performed shall be sprayed lightly with distilled, deionized water from a commercially available spray bottle that has been properly rinsed to preclude any dissolved solids. The spray shall just wet the surface to a “shiny” appearance. Wait 60 seconds to allow chemical equilibrium to be established and then test the pH of the water on the surface. Perform this test in accordance with ASTM D4262.
5. Moisture Testing: Perform moisture on the concrete surfaces according to Flooring Industry Guidelines as recommended by flooring manufacturer. Ensure that the results of these tests comply with the floor manufacturer’s requirements.
 - a. Calcium and Relative Humidity Tests:
 - b. The moisture content of the substrate shall be within the requirements for the substrate to receive floor covering when tested for moisture content using both the calcium chloride moisture test per ASTM F1869 and the relative humidity test per ASTM F2170 as recommended by the floor covering manufacturer to ensure that moisture does not affect adhesion, performance, or appearance of the floor covering. If no value is recommended, then 80 percent relative humidity. Where tests indicate moisture levels above the recommended levels, then comply with all recommendations and requirements by the floor covering manufacture to bring conditions to a satisfactory level.

- c. Perform calcium chloride moisture tests in accordance with ASTM D1869 once for every 1000 square feet of surface area to be coated. The maximum limit for moisture vapor emissions rate per 24 hours per 1000 sq. ft. shall be as recommended by the flooring manufacturer. If none is recommended, then 3 pounds per 24 hours per 1000 square feet. If tests indicate rates higher those recommended, consult with flooring manufacturer's Technical Service Department for further evaluation.
 - d. The polyethylene sheet test and measurements from moistures meters can be used as an indication of moisture, but the results of these tests cannot be used to determine the acceptability of the subfloor.
 - 6. Conduct sounding tests, as recommended by the flooring manufacturer, to locate voids and to determine the integrity of the concrete. Record results of all tests and send copies to the Owner and Architect. Show on a floor grid where each test was conducted and the test results. As a minimum, each report shall include the following information for each test that was conducted:
 - a. Project name
 - c. Date and Time of the Test
 - d. Test Location (wall, room, etc) of test.
 - e. Type sounding test conducted
 - f. Name of person conducting test
 - g. Test results
- K. Do not proceed with the work until unsatisfactory conditions have been corrected by the Contractor in a manner acceptable to the manufacturer and Architect.
- L. Adhesion testing is described under following paragraph 3.2.

3.2 PREPARATION

- A. Substrate: Perform preparation and cleaning procedures according to finish floor manufacturer's instructions for particular substrate conditions involved and as specified. Provide clean, dry and neutral substrate for flooring application.
- B. Remove substrate coatings, including curing compounds, and other substances that are incompatible with the floor covering and that contain soap, wax, oil, or silicone. Do not use liquid solvents or adhesive removers.
- C. The General Contractor shall patch and repair all cracks, voids, and other imperfections of concrete with high strength portland cement based patching material. Do not use gypsum based patching materials. After completion of sanding, patching and leveling, vacuum or sweep entire surface of concrete to remove loose dust and dirt before starting the installation of the material.
- D. Concrete Surfaces: Shot-blast, power scarify as required to obtain surface profile for optimum bond of flooring to concrete. Remove sufficient material to provide a sound surface, free of laitance, glaze efflorescence, and any bond-inhibiting curing compounds or form release

agents. Remove grease oil and other penetrating contaminants. Repair damaged and deteriorated concrete to acceptable condition. Leave surface free of dust, dirt, laitance and efflorescence. Acid etching shall not be used.

- E. Level substrate within to floor covering manufacturers requirements noncumulative, in all directions. Sand or grind protrusions, bumps, and ridges. Patch and repair cracks and rough areas. Fill depressions.
 - 1. If concrete is out of level then it should be properly leveled by an experienced underlayment contractor using cement based material that will provide a minimum of 3,000 p.s.i. compressive strength and sufficient bond to existing clean concrete surface.
 - 2. Use leveling and patching compounds to fill cracks, holes, and depressions in substrate as recommended by the floor covering manufacturer.
- F Broom or vacuum clean subfloors to be covered. Following cleaning, examine subfloors for moisture, alkaline salts, carbonation, or dust. Do not use oil based sweeping compounds.
- G. Primer: If required, apply concrete-slab primer, according to manufacturer's directions, where recommended by the floor covering manufacturer.
- H. Verify that concrete sub-floor, on or below grade, is adequately waterproofed beneath the slab and the perimeter with a suitable vapor barrier. Notify the Architect if inadequate waterproofing or vapor retarder is used.
- I. Verify that the concrete was wet cured and that no curing compounds or sealers were used. Notify the Architect if sealers or curing compounds were used..
- J. The building shall be dry and closed in. Flooring installation shall not begin until the installer is familiar with existing sub-floor conditions, and after completion of all other work in this area. During cold weather the room temperature shall be maintained at a minimum of 75°F.
- K. Adhesion/Bond Tests: After the substrate has been properly and satisfactorily prepared, sounded, and tested for moisture, perform adhesion tests to determine compatibility of adhesive, floor finish, and subfloor. Conduct all testing after all traces of curing compounds and sealers have been removed.
 - 1. When performing adhesion tests, perform testing with the adhesives and floor covering to be used on this project.
 - 2. Conduct adhesion test as recommended by the flooring manufacturer. If none recommended, perform the following:
 - a. Spread adhesive on substrate at recommended rate in two separate areas.
 - b. Allow one area to remain bare and to cure for recommended curing time or a minimum of 24 hours. Apply finish floor over other area of adhesive and allow to cure for recommended curing time or a minimum of 24 hours.
 - c. If adhesive can be scraped up with a putty knife, adhesion is not acceptable. Contact finish floor manufacturer for instructions. If adhesive cannot be scraped up, conditions are acceptable
 - d. Record test values for each type and combination of flooring and adhesive to be used.

e. Send copies of test reports to the Owner and the Architect.

- L. Wood Subfloor: Confirm the following:
1. Moisture content is within floor covering manufacturer's requirements. If no requirements, then no more than 8 percent when tested with a moisture meter calibrated to wood species of the substrate.
 1. Deck is clean, dry, sound and properly sloped. .
 2. Side joints are flush, even, and tightly butted.
 3. Fasteners are tight, straight, and fully recessed below the surface.
 4. Wood deck is fastened securely and does not wobble, shake, twist, compress, or deflect when walked on.
 5. Edges of wood deck are straight and square and are free of splinters and rough spots.
 6. Wood deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane.
 7. Wood deck is butted to perimeter terminations.
 8. Depressions are filled, smoothed, and are flush and even with adjacent surfaces as recommended by the floor covering manufacturer.

3.3 INSTALLATION

- A. Comply with applicable section of CRI 104 for required cushion and carpet installation for this project.
- B. Cushion
1. Install in longest available lengths and widths available to use as few cut section as possible.
 2. Apply stretch to cushion and taper seams.
 3. Adhere cushion to subfloor with specified adhesive.
 4. Install so that carpet seams do not occur over cushion seams.
- C. Carpet
1. Comply with carpet manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Do not bridge building expansion joints with continuous carpet.
 2. Install so that carpet seams do not occur over cushion seams.
 3. Where demountable partitions, cubicles, or other items are to be installed over carpet, do not install the carpet until the demountable partitions, cubicles, or other item have been completely installed.
 4. Cut and fit carpet 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 manufacturer.
 5. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
 6. Install pattern parallel to walls and borders.

3.4 CLEANING

- A. Perform the following operations immediately after completing installation.
 - 1. Remove visible adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
 - 2. Remove protruding yarns from carpet surface.
 - 3. Vacuum carpet using commercial machine with face-beater element.

3.5 PROTECTION

- A. General: Comply with CRI 104, Section 15: "Protection of Indoor Installation."
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure carpet is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09 68 00

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- 1. Section includes surface preparation and the application of paint systems on interior substrates.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Paint Schedule: Provide an interior paint schedule including Paint type, color, gloss, primer, and locations.
- D. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit (2) Samples of each on card stock, 80 square inches.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
 - 5. Samples of paint which will be applied to finished gypsum wallboard are to be provided within all rooms over 200 square feet. (excluding service rooms, storage rooms, and stairwells) that will be painted with said color, and the sample shall not be painted until the room has lighting installed and functional, as well as all surfaces finished which may impact the light levels and color rendering in the room. Sample on wall to be 4' x 4' inches square (16 sq.ft.) minimum
 - 6. Any substrate or material other than gypsum wallboard that is to be painted requires a minimum of (2) 1' x 1' painted samples of the substrate or material.
- E. Product List: For each product indicated, include the following:
 - 1. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 - 4. Architect will select one surface to represent surfaces and conditions for application of each paint system specified.
 - a. All surfaces: Provide samples of 10 foot x 10 foot (100 Sq. Ft.) minimum.
 - 5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - 6. Architect's final approval of colors will be based on the benchmark samples.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product Subject to compliance with requirements. Available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Sherwin-Williams Company (The).
 2. Behr Process Corporation.
 3. Benjamin Moore & Co.
 4. Durant Performance Coatings.
 5. ICI Paints.

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. Colors: As indicated in a color schedule see sheet X-I003 and X-I004.

2.3 BLOCK FILLERS

- A. Block Filler, Latex, Interior/Exterior: MPI #4

2.4 PRIMERS/SEALERS

- A. Primer Sealer, Latex, Interior: MPI #50.
- B. Primer Sealer, Alkyd, Interior: MPI #45.
- C. Primer, Latex, for Interior Wood: MPI #39

2.5 METAL PRIMERS

- A. Primer, Alkyd, Quick Dry, for Metal: MPI #76.
- B. Primer, Quick Dry, for Aluminum: MPI #95.

2.6 WATER-BASED PAINTS

- A. Latex, Interior, Flat, (Gloss Level 1): MPI #53.
- B. Latex, Interior, Eggshell (Gloss Level 3): MPI #52.
- C. Latex, Interior, Semi-Gloss, (Gloss Level 5): MPI #54.

2.7 SOLVENT-BASED PAINTS

- A. Alkyd, Interior, Semi-Gloss (Gloss Level 5) MPI #47.

2.8 ALUMINUM PAINT

- A. Aluminum Paint: MPI #1.

2.9 TEXTURED COATING

- A. Primer for Textured Coating, Latex, Flat: As recommended in writing by topcoat manufacturer.
- B. Intermediate Coat for Textured Coating, Latex, Flat: As recommended in writing by topcoat manufacturer.
- C. Textured Coating, Latex, Flat: MPI #42.

2.10 FLOOR COATINGS

- A. Stain, Interior, for Concrete Floors: MPI #58.
- B. Sealer, Water Based, for Concrete Floors: MPI #99.
- C. Sealer, Solvent Based, for Concrete Floors: MPI #104.
- D. Floor Paint, Latex, Low Gloss (Maximum Gloss Level 3): MPI #60.

2.11 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Concrete: 12 percent.
 2. Wood: 15 percent.
 3. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
 1. SSPC-SP 2, "Hand Tool Cleaning."
 2. SSPC-SP 3, "Power Tool Cleaning."
 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- G. Aluminum Substrates: Remove loose surface oxidation.
- H. Wood Substrates:
 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 2. Sand surfaces that will be exposed to view, and dust off.
 3. Prime edges, ends, faces, undersides, and backsides of wood.
 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- I. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Paint Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work.
1. Paint the following work flat black where exposed in equipment rooms:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Metal conduit.
 - e. Plastic conduit.
 - f. Tanks that do not have factory-applied final finishes.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 2. Paint the following work according to finish schedule, where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 09 91 23