



UNIVERSITY OF
SOUTH CAROLINA

PROJECT MANUAL

**WELSH HUMANITIES BUILDING
GROUND FLOOR RENOVATION**

PROJECT NO H27-I976

MARCH 2012



Fant Architectural Service, Ilc

3610 Landmark Drive, Suite C, Columbia, South Carolina 29204

PROJECT DIRECTORY

OWNER

The University of South Carolina
Facilities Management Center
743 Greene Street
Columbia, South Carolina 29208
(803)777-3126 FAX (803)777-8739

ARCHITECT OF RECORD

Fant Architectural Service, llc
3610 Landmark Drive
Suite C
Columbia, South Carolina 29204
(803)233-3989 FAX (803) 233-6861

MECHANICAL ENGINEER

Felkel & Hastings
3101 Carlisle Street
Columbia, South Carolina 29205
(803)771-0185

ELECTRICAL ENGINEER

John Ray Williams & Associates
3918 Rosewood Drive
Columbia, South Carolina
(803)782-5411

STRUCTURAL ENGINEER

Michael H. Hance PE LLC
1133 Club Terrace
Mount Pleasant, South Carolina
(843) 856-2649

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**SE-310
REQUEST FOR ADVERTISEMENT**

2011 Edition
Rev. 7/20/2011

PROJECT NAME: Welsh Humanities Building Ground Floor Renovation

PROJECT NUMBER: H27-1976

PROJECT LOCATION: Columbia, 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: \$350K- \$400K

DESCRIPTION OF PROJECT: Complete renovation to the western 40% of the ground floor of the Welsh Humanities Building including abatement, demolition, new storefront capturing additional SF, partitioning, space finishes, mechanical and electrical. Site visit is strongly encouraged prior to bidding. The only site visit will be immediately after pre bid.

A/E NAME: Fant Architectural Services, LLC

A/E CONTACT: Thomas M Fant

A/E ADDRESS: Street/PO Box:3610 Landmark Drive, Suite C

City: Columbia

State: SC ZIP: 29204-

EMAIL: tfant@fantarchitecturalservice.com

TELEPHONE: 803.233.3989

FAX: 803.233.6861

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

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

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):*

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

DATE: 5/7/2012

TIME: 9am

PLACE: 743 Greene St, Conf Rm 53, Columbia SC 29208

AGENCY: University of South Carolina

NAME OF AGENCY PROCUREMENT OFFICER: Juaquana Brookins

ADDRESS: Street/PO Box:743 Greene St

City: Columbia

State: SC ZIP: 29208-

EMAIL: jbrookin@fmc.sc.edu

TELEPHONE: 803.777.3596

FAX: 803.777.7334

BID CLOSING DATE: 5/17/2012 **TIME:** 2pm **LOCATION:** 743 Greene St, Conf Rm 53, Columbia SC 29208

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Juaquana Brookins

743 Greene St

Columbia, SC 29208

MAIL SERVICE:

Attn: Juaquana Brookins

743 Greene St

Columbia, SC 29208

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

APPROVED BY *(Office of State Engineer):* _____

DATE: _____

AIA - A701 (1997)
Instructions To Bidders

Original AIA Document on file at the office of



3610 Landmark Drive, Suite C * Columbia, South Carolina 29204
Business (803)233-3989 | Fax (803) 233-6861

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

OWNER: University of South Carolina**PROJECT NUMBER:** H27-1976**PROJECT NAME:** Welsh Humanities Building Ground Floor Renovation**PROJECT LOCATION:** University of South Carolina**PROCUREMENT OFFICER:** Juaquana Brookins**1. STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS**

1.1. These Standard Supplemental Instructions To Bidders amend or supplement Instructions To Bidders (AIA Document A701-1997) and other provisions of Bidding and Contract Documents as indicated below.

1.2. Compliance with these Standard Supplemental Instructions is required by the Office of State Engineer (OSE) for all State projects when competitive sealed bidding is used as the method of procurement.

1.3. All provisions of A701-1997, which are not so amended or supplemented, remain in full force and effect.

1.4. Bidders are cautioned to carefully examine the Bidding and Contract Documents for additional instructions or requirements.

2. MODIFICATIONS TO A701-1997

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

1.1 Bidding Documents, collectively referred to as the **Invitation for Bids**, include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement, Instructions to Bidders (A-701), Supplementary Instructions to Bidders, the bid form (SE-330), the Intent to Award Notice (SE-370), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda issued prior to execution of the Contract, and other documents set forth in the Bidding Documents. Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101, 2007 Edition as modified by OSE Form 00501 – Standard Modification to Agreement Between Owner and Contractor. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201, 2007 Edition as modified by OSE Form 00811 – Standard Supplementary Conditions.

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

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

2.4. *In Section 2.1.1:*

After the words “Bidding Documents,” delete the word “or” and substitute the word “and.”

Insert the following at the end of this section:

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

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

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

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

2.2 CERTIFICATION OF INDEPENDENT PRICE DETERMINATION

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

(a) By submitting an bid, the bidder certifies that—

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to—

- (i) Those prices;
- (ii) The intention to submit an bid; or
- (iii) The methods or factors used to calculate the prices offered.

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit an bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory—

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid, and that the signatory has not participated and will not participate in any action contrary to paragraphs (a)(1) through (a)(3) of this certification; or

(2)(i) Has been authorized, in writing, to act as agent for the bidder's principals in certifying that those principals have not participated, and will not participate in any action contrary to paragraphs (a)(1) through (a)(3) of this certification [As used in this subdivision (b)(2)(i), the term "principals" means the person(s) in the bidder's organization responsible for determining the prices offered in this bid];

(ii) As an authorized agent, does certify that the principals referenced in subdivision (b)(2)(i) of this certification have not participated, and will not participate, in any action contrary to paragraphs (a)(1) through (a)(3) of this certification; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to paragraphs (a)(1) through (a)(3) of this certification.

(c) If the bidder deletes or modifies paragraph (a)(2) of this certification, the bidder must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

2.3 DRUG FREE WORKPLACE

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

2.4 CERTIFICATION REGARDING DEBARMENT AND OTHER RESPONSIBILITY MATTERS

(a) (1) By submitting an Bid, Bidder certifies, to the best of its knowledge and belief, that-

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

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

(B) Have not, within a three-year period preceding this bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in

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

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.

OSE FORM 00201**STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS****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 may be used for both Alternates and Base Bid Work if Alternates are accepted.

2.22. Delete Section 4.1.6 and substitute the following:

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

2.23. Delete Section 4.1.7 and substitute the following:

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

2.24. Delete Section 4.2.1 and substitute the following:

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

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.

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

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

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

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

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

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

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

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

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

6.1 CONTRACTOR'S RESPONSIBILITY

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

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secret or protected, the State may, in its sole discretion, determine it nonresponsive. If only portions of a page are subject to some protection, do not mark the entire page. By submitting a response to this solicitation, Bidder (1) agrees to the public disclosure of every page of every document regarding this solicitation or request that was submitted at any time prior to entering into a contract (including, but not limited to, documents contained in a response, documents submitted to clarify a response, & documents submitted during negotiations), unless the page is conspicuously marked "TRADE SECRET" or "CONFIDENTIAL" or "PROTECTED", (2) agrees that any information not marked, as required by these bidding instructions, as a "Trade Secret" is not a trade secret as defined by the Trade Secrets Act, & (3) agrees that, notwithstanding any claims or markings otherwise, any prices, commissions, discounts, or other financial figures used to determine the award, as well as the final contract amount, are subject to public disclosure. In determining whether to release documents, the State will detrimentally rely on Bidders's marking of documents, as required by these bidding instructions, as being either "Confidential" or "Trade Secret" or "PROTECTED". By submitting a response, Bidder agrees to defend, indemnify & hold harmless the State of South Carolina, its officers & employees, from every claim, demand, loss, expense, cost, damage or injury, including attorney's fees, arising out of or resulting from the State withholding information that Bidder marked as "confidential" or "trade secret" or "PROTECTED".

9.4 POSTING OF INTENT TO AWARD

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

Room or Area of Posting: Lobby

Building Where Posted: Facilities Management Center

Address of Building: 743 Greene Street; Columbia, South Carolina 29208

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

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

9.5 PROTEST OF SOLICITATION OR AWARD

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

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

(a) by email to protest-ose@mmo.sc.gov,

(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

AIA – A310 (2010)
Bid Bond

Original AIA Document on file at the office of



3610 Landmark Drive, Suite C * Columbia, South Carolina 29204
Business (803)233-3989 | Fax (803) 233-6861

**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 Welsh Humanities Building Ground Floor Renovation
PROJECT NUMBER H27-1976

OFFER

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

§ 2. Pursuant to Section 11-32-3030(1) of the SC Code of Laws, as amended, Bidder has submitted Bid Security as follows in the amount and form required by the Bidding Documents:

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

(Bidder check one)

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

ADDENDUM No: _____

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

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

§ 6.1 BASE BID WORK *(as indicated in the Bidding Documents and generally described as follows):* Project includes complete renovations to the western 40% of the ground floor of the Welsh Humanities Building including demolition, new storefront capturing additional square footage, partitioning, space finishes, mechanical and electrical. Base Bid includes all work shown on the project documents except for Alternates No. 1 and No. 2. Base bid does not include Alternate No. 1 or Alternate No. 2. Small and minority 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): Provide and include casework as shown on A3

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): Provide and install horizontal louver blinds as shown on A3

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)

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BID FORM

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

Bidder shall use the below-listed Subcontractors in the performance of the Subcontractor 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
Air Conditioning		
Electrical		
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 120 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 \$250.00 for each calendar day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This 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
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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- A101(2007)
Standard Form of Agreement Between
Owner and Contractor

Original AIA Document on file at the office of



3610 Landmark Drive, Suite C * Columbia, South Carolina 29204
Business (803)233-3989 | Fax (803) 233-6861

OSE FORM 00501 STANDARD MODIFICATIONS TO AGREEMENT BETWEEN OWNER AND CONTRACTOR

OWNER: University of South Carolina

PROJECT NUMBER: H27-I976

PROJECT NAME: Welsh Humanities Building Ground Floor Renovation

1. STANDARD MODIFICATIONS TO AIA A101-2007

1.1. These Standard Modifications amend or supplement the *Standard Form of Agreement Between Owner and Contractor* (AIA Document A101-2007) and other provisions of Bidding and Contract Documents as indicated below.

1.2. All provisions of A101-2007, which are not so amended or supplemented, remain in full force and effect.

2. MODIFICATIONS TO A101

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

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

2.2. *Delete Section 3.1 and substitute the following:*

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

2.3. *Delete Section 3.2 and substitute the following:*

3.2 The Contract Time shall be measured from the Date of Commencement as provided in Section 9(a) of the Bid Form (SE-330) for this Project. Contractor agrees that if the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, the Owner shall be entitled to withhold or recover from the Contractor liquidated damages in the amounts set forth in Section 9(b) of the Bid Form (SE-330, subject to adjustments of this Contract Time as provided in the Contract Documents.

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

2.5. *Delete Section 5.1.3 and substitute the following:*

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

2.6. *In Section 5.1.6, Insert the following after the phrase “Subject to other provisions of the Contract Documents”:*

and subject to Title 12, Chapter 8, Section 550 of the South Carolina Code of Laws, as amended (Withholding Requirements for Payments to Non-Residents)

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

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

2.7. *In Section 5.1.8, delete the word “follows” and the colon and substitute the following:*

set forth in S.C. Code Ann. § 11-35-3030(4).

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

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

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

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

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

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

Name: Tom Opal
Title: Senior Project Manager
Address: 743 Greene Street; Columbia, South Carolina 29208
Telephone: 803-777-9346 **FAX:** 803-777-8739
Email: tno@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: _____
Title: _____
Address: _____
Telephone: _____ **FAX:** _____
Email: _____

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: Jeff Abrams
Title: Project Manager
Address: 743 Greene Street; Columbia, South Carolina 29208
Telephone: 803-239-8074 **FAX:** _____
Email: jabrams@fmc.sc.edu

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: _____
Title: _____
Address: _____
Telephone: _____ **FAX:** _____
Email: _____

2.14. *Add the following Section 8.6.1:*

8.6.1 The Architect's representative:

Name: Thomas M. Fant, AIA
Title: Architect
Address: 3610 Landmark Drive, Suite C; Columbia, South Carolina 29204
Telephone: 803-233-3989 **FAX:** 803-233-6861
Email: tfant@fantarchitecturalservice.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- A201 (2007)
General Conditions of the Contract
for Construction

Original AIA Document on file at the office of



3610 Landmark Drive, Suite C * Columbia, South Carolina 29204
Business (803)233-3989 | Fax (803) 233-6861

OSE FORM 00811
STANDARD SUPPLEMENTARY CONDITIONS

OWNER: University of South Carolina
PROJECT NUMBER: H27-1976
PROJECT NAME: Welsh Humanities Building Ground Floor Renovation

1 GENERAL CONDITIONS

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

2 STANDARD SUPPLEMENTARY CONDITIONS

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

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

3 MODIFICATIONS TO A201-2007

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

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

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

3.3 *Add the following Section 1.1.9:*

1.1.9 NOTICE TO PROCEED

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

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

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

3.5 *Delete Section 1.5.1 and substitute the following:*

1.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as a violation of the Architect’s or Architect’s consultants’ reserved rights.

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

3.81 *Delete 11.1.2 and substitute the following:*

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

(1) COMMERCIAL GENERAL LIABILITY:

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

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

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

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

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

3.82 *Delete Section 11.1.3 and substitute the following:*

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

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

Prior to commencement of the Work, and thereafter upon renewal or replacement of each required policy of insurance, Contractor shall provide to the Owner a signed, original certificate of liability insurance (ACORD 25). Consistent with this Section 11.1, the certificate shall identify the types of insurance, state the limits of liability for each type of coverage, name the Owner a Consultants as Certificate Holder, provide that the general aggregate limit applies per project, and provide that coverage is written on an occurrence basis. Both the certificates and the

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endorsements must be received directly from either the Contractor's insurance agent or the insurance company. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, naming the Owner as an additional insured for claims made under the Contractor's completed operations, and otherwise meeting the above requirements, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

3.83 *Delete Section 11.1.4 and substitute the following:*

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

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

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

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

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

3.87 *Delete Section 11.3.2 and substitute the following:*

11.3.2 BOILER AND MACHINERY INSURANCE

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

3.88 *Delete Section 11.3.3 and substitute the following:*

11.3.3 LOSS OF USE INSURANCE

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

3.89 *Delete Section 11.3.4 and substitute the following:*

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

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

3.91 *Delete Section 11.3.6 and substitute the following:*

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

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3.92 Delete the first sentence of Section 11.3.7 and substitute the following:

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

3.93 Delete the first sentence of Section 11.3.8 and substitute the following:

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

3.94 Delete Section 11.3.9 and substitute the following:

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

3.95 Delete Section 11.3.10 and substitute the following:

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

3.96 Delete Section 11.4.1 and substitute the following:

11.4.1 Before commencing any services hereunder, the Contractor shall provide the Owner with Performance and Payment Bonds, each in an amount not less than the Contract Price set forth in Article 4 of the Agreement. The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount. The Performance Bond shall be written on Form SE-355, "Performance Bond" and the Payment Bond shall 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 to requirements specifically expressed in the Contract Documents, including inspections of work-in-progress required by all authorities having jurisdiction over the Project, it must, upon demand of the Architect or authority having jurisdiction, be uncovered for observation and be replaced at the Contractor’s expense without change in the Contract Time.

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

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

unless otherwise provided in the Contract Documents.

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

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

3.103 *Delete Section 13.1 and substitute the following:*

13.1 GOVERNING LAW

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

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

13.2 SUCCESSORS AND ASSIGNS

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

3.105 *Delete Section 13.3 and substitute the following:*

13.3 WRITTEN NOTICE

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

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

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

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

Unless expressly provided otherwise,

3.107 *Add the following Section 13.4.3:*

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

1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service;

3.5 Warranty

3.17 Royalties, Patents and Copyrights

3.18 Indemnification

7.6 Cost or Pricing Data

11.1 Contractor's Liability Insurance

11.4 Performance and Payment Bond

15.1.6 Claims for Listed Damages

15.1.7 Waiver of Claims Against the Architect

15.6 Dispute Resolution

15.4 Service of Process

3.108 *Delete Section 13.6 and substitute the following:*

13.6 INTEREST

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

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

3.110 *Add the following Sections 13.8 through 13.16:*

13.8 PROCUREMENT OF MATERIALS BY OWNER

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

13.9 INTERPRETATION OF BUILDING CODES

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

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13.10 MINORITY BUSINESS ENTERPRISES

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

13.11 SEVERABILITY

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

13.12 ILLEGAL IMMIGRATION

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

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 waive as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14. Nothing contained in this Section shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

3.129 *Add the following Section 15.1.7:*

15.1.7 WAIVER OF CLAIMS AGAINST THE ARCHITECT

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor waives all claims against the Architect and any other design professionals who provide design and/or project management services to the Owner, either directly or as independent contractors or subcontractors to the Architect, for listed damages arising out of or relating to this Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v)

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

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

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

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

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

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

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

15.5.4 If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Architect when the response or supporting data will be furnished or (3) advise the Architect that all supporting data has already been provided. Upon receipt of the response or supporting data, the Architect will render an initial decision in accordance with Section 15.5.5.

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

15.5.6 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

15.6 DISPUTE RESOLUTION

15.6.1 If a claim is not resolved pursuant to Section 15.5 to the satisfaction of either party, both parties shall attempt to resolve the dispute at the field level through discussions between Contractor's Representative and Owner's Representative. If a dispute cannot be resolved through Contractor's Representative and Owner's Representative, then the Contractor's Senior Representative and the Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than twenty-one days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

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

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

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

15.6.5 SERVICE OF PROCESS

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

3.132 Add the following Article 16:

ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

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

- Special Inspections are required and are not part of the Contract Sum. *(see section 01400)*
- Building Inspections are required and are not part of the Contract Sum. *(see section 01400)*
- Building Inspections are required and are part of the Contract Sum. The inspections required for this Work are : *(Indicate which services are required and the provider)*

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

Remarks: _____

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

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

Refer to Project Manual Section 012100 - Allowances

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

Refer to Project Manual Section 017839 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 Project Manual Section 013330 Submittal Procedures and specific submittals required in the technical specifications.

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

Refer to Project Manual Section 015000 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)*

None

Project Name: Welsh Humanities Building Ground Floor Renovation

Project Number: H27-I976

University of South Carolina

CONTRACTOR'S ONE YEAR GUARANTEE

STATE OF _____

COUNTY OF _____

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

Defects or failures resulting from abuse by Owner.

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

[Name of Contracting Firm]

*By _____

Title _____

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

SWORN TO before me this _____ day of _____, 2____ (seal)

_____ State

My commission expires _____

CONSTRUCTION CHANGE ORDER

Change Order No.:	
--------------------------	--

Agency: University of South Carolina

Project Number: H27-1976

Project Name: Welsh Humanities Building Ground Floor Renovation

Contractor:

Contract Dated: _____ For: _____

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

Adjustments in the Contract Sum:

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

Adjustments in Contract Time:

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

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 _____ 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.

Performance Bond

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

Name: _____
Address: _____

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

Name: _____
Address: _____

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

Name: University of South Carolina
Address: 743 Greene Street
Columbia, South Carolina 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: Welsh Humanities Building Ground Floor R
State Project Number: H27-I976
Brief Description of Awarded Work, as found on the SE-330, Bid Form: Project includes complete renovation to the western 40% of the ground floor of the Welsh Humanities building including demolition, partitioning the space, finishes, mechanical and electrical.

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

Name: Fant Architectural Service
Address: 3610 Landmark Drive, Suite C
Columbia, South Carolina 29204

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**

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, South Carolina 29208

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

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

Project Name: Welsh Humanities Building Ground Floor R
Project Number: H27-1976
Brief Description of Awarded Work, as found on the SE-330, Bid Form: Project includes complete renovation to the western 40% of the ground floor of the Welsh Humanities Building including demolition, partitioning the space, finishes, mechanical and electrical.

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

Name: Fant Architectural Service
Address: 3610 Landmark Drive, Suite C
Columbia, South Carolina 29204

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

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

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

CONTRACTOR

SURETY

By: _____
(Seal)

By: _____
(Seal)

Print Name: _____

Print Name: _____

Print Title: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

Witness: _____

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

SE-357**Labor and Material Payment Bond****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to the Agency, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
 - 2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
 - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
 - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
 - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 5.2 Pay or arrange for payment of any undisputed amounts.
 - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
6. Amounts owed by the Agency to the Contractor under the

Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency's prior right to use the funds for the completion of the Work.

7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.

13. DEFINITIONS

13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.

13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.

13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

1 SECTION 011000 - SUMMARY

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Work covered by the Contract Documents.
9 2. Type of the Contract.
10 3. Work phases.
11 4. Use of premises.
12 5. Owner's occupancy requirements.
13 6. Specification formats and conventions.
14 7. General Contractor Communications.

- 15 B. Also see section 012100 Allowances and also OSE document 330 BF-1A

16 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- 17 A. Project Identification: Welsh Humanities Building Ground Floor Renovations, USC –
18 Columbia Campus, [Project Number H27-I976]

- 19 1. Project Location: Columbia, South Carolina

- 20 B. Owner: University of South Carolina

- 21 1. Owner's Representative: Jeff Abrams, Project Manager, Facilities Planning &
22 Construction, University of South Carolina.

- 23 C. The Work consists of the following:

- 24 1. The Work consists of Welsh Humanities Building Ground Floor Renovation per the
25 contract documents.

26 1.4 TYPE OF CONTRACT

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

28 1.5 WORK PHASES

29 A. The Work shall be conducted in phases in the following order, with each phase substantially
30 complete before beginning the next phase:

- 31 1. Phase 1 is to establish a new means of egress from west stair to north exit. This means of
32 egress must remain in place and clear for the duration of the project Phase 1 is further
33 explained and detailed on sheet D-1.
- 34 2. Phase 2 is to isolate the work zone from the public elevator lobby. Phase 2 is further
35 explained and detailed on sheet D-2. This isolation is to stay in place until permanent
36 construction can provide same level of separation as temporary construction.
- 37 3. Phase 3 perform hazardous material abatement in accordance with Drawings and
38 Specifications prepared for USC by F&ME. This phase includes air monitoring. Contract
39 administration will be by F&ME and that work is a part of this lump sum contract.
- 40 4. Phase 4 perform demolition and construction in accordance with remaining Contract
41 Documents.

42 B. Before commencing Work of each phase, submit a schedule showing the sequence,
43 commencement and completion dates, and move-out and -in dates of Owner's personnel for all
44 phases of the Work.

45 1.6 USE OF PREMISES

46 A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of
47 Project site beyond areas in which the Work is indicated.

- 48 1. Limits: Confine constructions operations to work zone and area within 20' of work area.
- 49 2. Owner Occupancy: Allow for Owner occupancy of Project site..
- 50 3. Driveways and Entrances: Keep driveways loading areas, and entrances serving premises
51 clear and available to Owner, Owner's employees, and emergency vehicles at all times.
52 Do not use these areas for parking or storage of materials.
- 53 a. Schedule deliveries to minimize use of driveways and entrances.
- 54 b. Schedule deliveries to minimize space and time requirements for storage of
55 materials and equipment on-site.

56 B. Use of Existing Building: Maintain existing building in a weathertight condition throughout
57 construction period. Repair damage caused by construction operations. Protect building and its
58 occupants during construction period.

59 C. Owner will not propose any time restrictions on General Contractor. General Contractor will
60 have access to the site 24/7, 365.

61 1.7 OWNER'S OCCUPANCY REQUIREMENTS

62 A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period,
63 with the exception of areas under construction. Cooperate with Owner during construction

64 operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to
65 interfere with Owner's operations. Maintain existing exits, unless otherwise indicated.

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

71 1.8 WORK RESTRICTIONS

72 A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or
73 others unless permitted under the following conditions and then only after arranging to provide
74 temporary utility services according to requirements indicated:

- 75 1. Notify Architect and Owner not less than two days in advance of proposed utility
76 interruptions.
77 2. Do not proceed with utility interruptions without Owner's written permission.

78 1.9 SPECIFICATION FORMATS AND CONVENTIONS

79 A. Specification Format: The Specifications are organized into Divisions and Sections using the
80 50-division format and CSI/CSC's "MasterFormat" numbering system.

- 81 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in
82 the Specifications.

83 B. Specification Content: The Specifications use certain conventions for the style of language and
84 the intended meaning of certain terms, words, and phrases when used in particular situations.
85 These conventions are as follows:

- 86 1. Abbreviated Language: Language used in the Specifications and other Contract
87 Documents is abbreviated. Words and meanings shall be interpreted as appropriate.
88 Words implied, but not stated, shall be inferred as the sense requires. Singular words
89 shall be interpreted as plural, and plural words shall be interpreted as singular where
90 applicable as the context of the Contract Documents indicates.
91 2. Imperative mood and streamlined language are generally used in the Specifications.
92 Requirements expressed in the imperative mood are to be performed by Contractor.
93 Occasionally, the indicative or subjunctive mood may be used in the Section Text for
94 clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by
95 others when so noted.

- 96 a. The words "shall," "shall be," or "shall comply with," depending on the context,
97 are implied where a colon (:) is used within a sentence or phrase.

- 98 1.10 GENERAL CONTRACTOR COMMUNICATIONS
- 99 A. General Contractor including superintendent shall have email and cell phone communications at
- 100 all times.

- 101 PART 2 - PRODUCTS (Not Used)

- 102 PART 3 - EXECUTION (Not Used)

- 103 END OF SECTION 011000

1 SECTION 011010A – SPECIAL CONDITIONS

2 PART 1 - GENERAL

3 1.1 SCOPE:

4 A. This section lists known special conditions that exist or pertain to the Contract Documents.

5 1.2 SPECIAL CONDITIONS:

6 1. **ASBESTOS:** It is the intent of the plans and specifications to specify only non-asbestos
7 containing materials. Asbestos is defined as follows:
8

9 **ASBESTOS** – The asbestiform varieties of serpentine (chrysotile), rie bekite
10 (crocidolite), cummingtonite grunerite (amosite), anthrophyllite, actinolite, and tremolite.
11 ***Materials containing any form of asbestos in any percentages shall not be used.*** PRODUCTS
12 SHALL BE ASBESTOS FREE. Suppliers supplying materials containing asbestos in any form
13 or percentages shall be responsible for the removal of these materials if delivered or installed
14 and any cleanup required, in addition to the installation of asbestos free materials.

15 B. **HEAVY METALS:** It is the intent of these plans and specifications to specify materials
16 containing NO HEAVY METALS BY DESIGN. Heavy metals are defined as mercury, lead
17 and other metals known to cause bodily harm. Lead products may be used in roofing
18 applications. Lead soldering for any water or waste water is not allowed. Products containing
19 heavy metals may be used only with the written permission of the architect. Cleanup for
20 products, containing heavy metals, installed without written permission shall be at the
21 contractors expense. Installation of new non-heavy metal products shall be at no cost to the
22 Owner.

23 C. **The Contractor, His Subcontractors and/or Personnel Employed by either shall:**

- 24
- 25 1. Remain in the designated work areas.
 - 26 2. Maintain a safe work site at all times.
 - 27 3. Schedule all work with the Owner.
 - 28 4. Remain fully clothed at all times on or around job site.
 - 29 5. Have no verbal contact with students or staff..
 - 30 6. Sunday work will be allowed.
 - 31 7. In accordance with State Law, this facility is a No Smoking Facility. An exterior smoking
32 area will be established by the Owner and any smoking shall occur at that area.
 - 33 8. During rainy weather the general contractor shall maintain adequate forces on the job to
34 keep water out of spaces at tie-ins and other similar areas where construction activities
35 have compromised existing walls and roof systems. Also provide “dams”, diversions, etc.
36 as required to keep occupied spaces dry.
37

38 END OF SECTION 011010A

1 SECTION 012000 – SCHEDULE OF COMPLETION AND LIQUIDATED DAMAGES

2 PART 1 - GENERAL

3 1.1 TIME OF COMPLETION

4 A. Attention is directed to the fact that the building and facilities are urgently needed by the Owner
5 and that time is of the essence; for this reason, it shall be agreed that the Contractor shall begin
6 work and complete work as listed in the following schedule:

7

Building Area	Ordering of Materials	Start Date	Completion Date
ALL	Upon Notice to Proceed	Notice to proceed will provide a date of commencement. Date of commencement will be considered the start date.	Will be established as the 120 th calendar date past the date of commencement.

8 1.2 SUSSTANTIAL COMPLETION:

9 A. The Contractor shall inspect the entire project with his subcontractors. A list of
10 incorrect/incomplete items will be forwarded to the Architect. The Contractor shall immediately
11 start correcting this list and date the items as they are completed. **THE ARCHITECT NOR**
12 **THE ENGINEERS WILL START FINAL INSPECTIONS PRIOR TO RECEIVING THE**
13 **CONTRACTOR'S COMPLETED LIST.**

14 B. The final inspections shall be made by the Architect and his consultants after the contractors list
15 with dated corrections is received by the Architect. A list of the Architect's and Engineer's
16 findings of incorrect/incomplete items will be forwarded to the contractor. Provide the items
17 discovered are few or minor in nature, the Architect will issue a Certificate of Substantial
18 Completion along with his list.

19 C. Contractor shall have 15 calendar days to correct all items on the architect's list, and at that time
20 shall certify in writing that all items are correct and complete. Monies will be withheld from the
21 contract until all list items are acceptable by the Architect. The architect, alone, will determine
22 amounts to be withheld and multiply this number by a factor of three (3). A minimum of 2 ½%
23 of the total project cost will be held until this list is 100% complete. List shall be corrected at
24 the owner's convenience. At substantial completion, the facility will be occupied. Therefore, all
25 remaining list items following substantial completion will have to be corrected when the facility
26 is not being used by the owner.

27 D. Liquidated Damages \$250.00 per day starting the 121st calendar day after the commencement
28 date.

29 END OF SECTION 012000

1 SECTION 0121000 – ALLOWANCES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SCOPE:

- 7 A. This section describes the allowances that are to be included in the contractor's bid and entered
8 on the Form of Proposal.

9 1.3 ALLOWANCE:

- 10 A. The following allowances to be used as directed by Architect. Any unused portion of these
11 allowances shall be credited to the Owner at the completion of the work. These allowances shall
12 be for materials only and shall be considered actual costs and the contractor's overhead and
13 profit, insurance, installation cost, and protection of installed products, will be figured in the
14 bids, except as otherwise noted.

15 1.4 TILING ALLOWANCE:

- 16 A. \$8.00/Square foot (wall and floor) including South Carolina Sales Tax (Tiling quantity
17 identified on plans)

18 END OF SECTION 0121000

19

1 SECTION 012400 – CONTRACT MODIFICATION PROCEDURES

2 PART 1 - GENERAL

3 1.1 SUMMARY

4 A. This Section specifies administrative and procedural requirements for handling and processing
5 contract modifications. These projects will utilize the AIA Documents listed.

6 1.2 MINOR CHANGES IN THE WORK

7 A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not
8 involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710,
9 “Architect’s Supplemental Instructions.”

10 1.3 PROPOSAL REQUESTS

11 A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed
12 changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If
13 necessary, the description will include supplemental or revised Drawings and Specifications.

14 1. Proposal Requests issued by Architect are for information only. Do not consider them
15 instructions either to stop work in progress or to execute the proposed change.

16 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a
17 quotation estimating cost adjustments to the Contract Sum and the Contract Time
18 necessary to execute the change.

19 a. Include a list of quantities of products required or eliminated and unit costs, with
20 total amount of purchases and credits to be made. If requested, furnish survey data
21 to substantiate quantities.

22 b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade
23 discounts.

24 c. Include costs of labor and supervision directly attributable to the change.

25 d. Include and updated Contractor’s Construction Schedule that indicates the effect of
26 the change, including, but not limited to, changes in activity duration, start and
27 finish times, and activity relationship. Use available total float before requesting an
28 extension of the Contract Time.

29 B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the
30 Contract, Contractor may propose changes by submitting a request for a change to Architect.

- 31 1. Include a statement outlining reasons for the change and the effect of the change on the
32 Work. Provide a complete description of the proposed change. Indicate the effect of the
33 proposed change on the Contract Sum and the Contract Time.
- 34 2. Include a list of quantities of products required or eliminated and unit costs, with total
35 amount of purchases and credits to be made. If requested, furnish survey data to
36 substantiate quantities.
- 37 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade
38 discounts.
- 39 4. Include costs of labor and supervision directly attributable to the change.
- 40 5. Include an updated Contractor's Construction Schedule that indicates the effect of the
41 change, including, but not limited to, changes in activity duration, start and finish times,
42 and activity relationship. Use available total float before requesting an extension of the
43 Contract Time.
- 44 6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed
45 change requires substitution of one product or system for product or system specified.
- 46 C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

47 1.4 CHANGE ORDER PROCEDURES

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

50 1.5 CONSTRUCTION CHANGE DIRECTIVE

- 51 A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA
52 Document G714. Construction Change Directive instructs Contractor to proceed with a change
53 in the Work, for subsequent inclusion in a Change Order.

- 54 1. Construction Change Directive contains a complete description of change in the Work. It
55 also designates method to be followed to determine change in the Contract Sum or the
56 Contract Time.

- 57 B. Documentation: Maintain detailed records on a time and material basis of work required by the
58 Construction Change Directive.

- 59 1. After completion of change, submit an itemized account and supporting data necessary to
60 substantiate cost and time adjustments to the Contract.

**Welsh Humanities Building Ground Floor Renovation
USC – Columbia Campus**

**3/30/12
H27-1976**

- 61 PART 2 - PRODUCTS (Not Used)
- 62 PART 3 - EXECUTION (Not Used)
- 63 END OF SECTION 012400

1 SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes administrative provisions for coordinating construction operations on
8 Project including, but not limited to, the following:

- 9 1. Coordination Drawings.
10 2. Administrative and supervisory personnel.
11 3. Project meetings.
12 4. Requests for Interpretation (RFIs).

- 13 B. Each contractor shall participate in coordination requirements. Certain areas of responsibility
14 will be assigned to a specific contractor.

15 1.3 DEFINITIONS

- 16 A. RFI: Request from Contractor seeking interpretation or clarification of the Contract
17 Documents.

18 1.4 COORDINATION

- 19 A. Coordination: Coordinate construction operations included in different Sections of the
20 Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate
21 construction operations, included in different Sections, that depend on each other for proper
22 installation, connection, and operation.

- 23 B. Coordination: Each contractor shall coordinate its construction operations with those of other
24 contractors and entities to ensure efficient and orderly installation of each part of the Work.
25 Each contractor shall coordinate its operations with operations, included in different Sections,
26 that depend on each other for proper installation, connection, and operation.

- 27 1. Schedule construction operations in sequence required to obtain the best results where
28 installation of one part of the Work depends on installation of other components, before
29 or after its own installation.
30 2. Coordinate installation of different components with other contractors to ensure
31 maximum accessibility for required maintenance, service, and repair.
32 3. Make adequate provisions to accommodate items scheduled for later installation.

- 33 4. Where availability of space is limited, coordinate installation of different components to
34 ensure maximum performance and accessibility for required maintenance, service, and
35 repair of all components, including mechanical and electrical.
- 36 C. Prepare memoranda for distribution to each party involved, outlining special procedures
37 required for coordination. Include such items as required notices, reports, and list of attendees
38 at meetings.
- 39 1. Prepare similar memoranda for Owner and separate contractors if coordination of their
40 Work is required.
- 41 D. Administrative Procedures: Coordinate scheduling and timing of required administrative
42 procedures with other construction activities and activities of other contractors to avoid conflicts
43 and to ensure orderly progress of the Work. Such administrative activities include, but are not
44 limited to, the following:
- 45 1. Preparation of Contractor's Construction Schedule.
46 2. Preparation of the Schedule of Values.
47 3. Installation and removal of temporary facilities and controls.
48 4. Delivery and processing of submittals.
49 5. Progress meetings.
50 6. Project closeout activities.
51 7. Startup and adjustment of systems.
52 8. Project closeout activities.
- 53 E. Conservation: Coordinate construction activities to ensure that operations are carried out with
54 consideration given to conservation of energy, water, and materials.
- 55 1. Salvage materials and equipment involved in performance of, but not actually
56 incorporated into, the Work. Refer to other Sections for disposition of salvaged materials
57 that are designated as Owner's property.

58 1.5 SUBMITTALS

- 59 A. Coordination Drawings: Prepare Coordination Drawings if limited space availability
60 necessitates maximum utilization of space for efficient installation of different components or if
61 coordination is required for installation of products and materials fabricated by separate entities.
- 62 1. Content: Project-specific information, drawn accurately to scale. Do not base
63 Coordination Drawings on reproductions of the Contract Documents or standard printed
64 data. Include the following information, as applicable:
- 65 a. Indicate functional and spatial relationships of components of architectural,
66 structural, civil, mechanical, and electrical systems.
67 b. Indicate required installation sequences.
68 c. Indicate dimensions shown on the Contract Drawings and make specific note of
69 dimensions that appear to be in conflict with submitted equipment and minimum
70 clearance requirements. Provide alternate sketches to Architect for resolution of
71 such conflicts. Minor dimension changes and difficult installations will not be
72 considered changes to the Contract.

- 73 2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40
74 inches (750 by 1000 mm).
75 3. Number of Copies: Submit two opaque copies of each submittal. Architect will return
76 one copy.
- 77 a. Submit five copies where Coordination Drawings are required for operation and
78 maintenance manuals. Architect will retain one copy; remainder will be returned.
- 79 4. Refer to individual Sections for Coordination Drawing requirements for Work in those
80 Sections.
- 81 B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key
82 personnel assignments, including superintendent and other personnel in attendance at Project
83 site. Identify individuals and their duties and responsibilities; list addresses and telephone
84 numbers, including home and office telephone numbers. Provide names, addresses, and
85 telephone numbers of individuals assigned as standbys in the absence of individuals assigned to
86 Project.
- 87 1. Post copies of list in Project meeting room, in temporary field office, and by each
88 temporary telephone. Keep list current at all times.

89 1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- 90 A. General: In addition to Project superintendent, provide other administrative and supervisory
91 personnel as required for proper performance of the Work.
- 92 1. Include special personnel required for coordination of operations with other contractors.

93 1.7 PROJECT MEETINGS

- 94 A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise
95 indicated.
- 96 1. Attendees: Inform participants and others involved, and individuals whose presence is
97 required, of date and time of each meeting. Notify Owner and Architect of scheduled
98 meeting dates and times.
- 99 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
- 100 3. Minutes: Record significant discussions and agreements achieved. Distribute the
101 meeting minutes to everyone concerned, including Owner and Architect, within three
102 days of the meeting.
- 103 B. Preconstruction Conference: Schedule a preconstruction conference before starting
104 construction, at a time convenient to Owner, and Architect, but no later than 15 days after
105 execution of the Agreement. Hold the conference at Project site or another convenient location.
106 Conduct the meeting to review responsibilities and personnel assignments.
- 107 1. Attendees: Authorized representatives of Owner, Architect, and their consultants;
108 Contractor and its superintendent; major subcontractors; suppliers; and other concerned

- 109 parties shall attend the conference. All participants at the conference shall be familiar
110 with Project and authorized to conclude matters relating to the Work.
- 111 2. Agenda: Discuss items of significance that could affect progress, including the
112 following:
- 113 a. Tentative construction schedule.
 - 114 b. Phasing.
 - 115 c. Critical work sequencing and long-lead items.
 - 116 d. Designation of key personnel and their duties.
 - 117 e. Procedures for processing field decisions and Change Orders.
 - 118 f. Procedures for RFIs.
 - 119 g. Procedures for testing and inspecting.
 - 120 h. Procedures for processing Applications for Payment.
 - 121 i. Distribution of the Contract Documents.
 - 122 j. Submittal procedures.
 - 123 k. Preparation of Record Documents.
 - 124 l. Use of the premises and existing building.
 - 125 m. Work restrictions.
 - 126 n. Owner's occupancy requirements.
 - 127 o. Responsibility for temporary facilities and controls.
 - 128 p. Construction waste management and recycling.
 - 129 q. Parking availability.
 - 130 r. Office, work, and storage areas.
 - 131 s. Equipment deliveries and priorities.
 - 132 t. First aid.
 - 133 u. Security.
 - 134 v. Progress cleaning.
 - 135 w. Working hours.
- 136 3. Minutes: Architect will record and distribute meeting minutes.
- 137 C. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of
138 meetings with preparation of payment requests.
- 139 1. Attendees: In addition to representatives of Owner, and Architect, each contractor,
140 subcontractor, supplier, and other entity concerned with current progress or involved in
141 planning, coordination, or performance of future activities shall be represented at these
142 meetings. All participants at the conference shall be familiar with Project and authorized
143 to conclude matters relating to the Work.
 - 144 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review
145 other items of significance that could affect progress. Include topics for discussion as
146 appropriate to status of Project.
- 147 a. Contractor's Construction Schedule: Review progress since the last meeting.
148 Determine whether each activity is on time, ahead of schedule, or behind schedule,
149 in relation to Contractor's Construction Schedule. Determine how construction
150 behind schedule will be expedited; secure commitments from parties involved to
151 do so. Discuss whether schedule revisions are required to ensure that current and
152 subsequent activities will be completed within the Contract Time.
- 153 1) Review schedule for next period.

- 154 b. Review present and future needs of each entity present, including the following:
- 155 1) Interface requirements.
- 156 2) Sequence of operations.
- 157 3) Status of submittals.
- 158 4) Deliveries.
- 159 5) Off-site fabrication.
- 160 6) Access.
- 161 7) Site utilization.
- 162 8) Temporary facilities and controls.
- 163 9) Work hours.
- 164 10) Hazards and risks.
- 165 11) Progress cleaning.
- 166 12) Quality and work standards.
- 167 13) Status of correction of deficient items.
- 168 14) Field observations.
- 169 15) RFIs.
- 170 16) Status of proposal requests.
- 171 17) Pending changes.
- 172 18) Status of Change Orders.
- 173 19) Pending claims and disputes.
- 174 20) Documentation of information for payment requests.
- 175 3. Minutes: Record the meeting minutes.
- 176 4. Reporting: Distribute minutes of the meeting to each party present and to parties who
177 should have been present.
- 178 a. Schedule Updating: Revise Contractor's Construction Schedule after each progress
179 meeting where revisions to the schedule have been made or recognized. Issue
180 revised schedule concurrently with the report of each meeting.

181 1.8 REQUESTS FOR INTERPRETATION (RFIs)

- 182 A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents,
183 and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the
184 form specified.
- 185 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor
186 will be returned with no response.
- 187 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's
188 work or work of subcontractors.
- 189 B. Content of the RFI: Include a detailed, legible description of item needing interpretation and
190 the following:
- 191 1. Project name.
- 192 2. Date.
- 193 3. Name of Contractor.
- 194 4. Name of Architect.
- 195 5. RFI number, numbered sequentially.

- 196 6. Specification Section number and title and related paragraphs, as appropriate.
197 7. Drawing number and detail references, as appropriate.
198 8. Field dimensions and conditions, as appropriate.
199 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time
200 or the Contract Sum, Contractor shall state impact in the RFI.
201 10. Contractor's signature.
202 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop
203 Drawings, and other information necessary to fully describe items needing interpretation.
- 204 a. Supplementary drawings prepared by Contractor shall include dimensions,
205 thicknesses, structural grid references, and details of affected materials,
206 assemblies, and attachments.
- 207 C. Hard-Copy RFIs:
- 208 1. Identify each page of attachments with the RFI number and sequential page number.
- 209 D. Software-Generated RFIs: Software-generated form with substantially the same content as
210 indicated above.
- 211 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- 212 E. Architect's Action: Architect will review each RFI, determine action required, and return it.
213 Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m.
214 will be considered as received the following working day.
- 215 1. The following RFIs will be returned without action:
- 216 a. Requests for approval of submittals.
217 b. Requests for approval of substitutions.
218 c. Requests for coordination information already indicated in the Contract
219 Documents.
220 d. Requests for adjustments in the Contract Time or the Contract Sum.
221 e. Requests for interpretation of Architect's actions on submittals.
222 f. Incomplete RFIs or RFIs with numerous errors.
- 223 2. Architect's action may include a request for additional information, in which case
224 Architect's time for response will start again.
- 225 3. Architect's action on RFIs that may result in a change to the Contract Time or the
226 Contract Sum may be eligible for Contractor to submit Change Proposal.
- 227 a. If Contractor believes the RFI response warrants change in the Contract Time or
228 the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI
229 response.
- 230 F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response
231 to affected parties. Review response and notify Architect within seven days if Contractor
232 disagrees with response.
- 233 G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number.
234 Submit log weekly .

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- 235 1. Project name.
- 236 2. Name and address of Contractor.
- 237 3. Name and address of Architect.
- 238 4. RFI number including RFIs that were dropped and not submitted.
- 239 5. RFI description.
- 240 6. Date the RFI was submitted.
- 241 7. Date Architect's response was received.
- 242 8. Identification of related Minor Change in the Work, Construction Change Directive, and
- 243 Proposal Request, as appropriate.
- 244 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as
- 245 appropriate.

246 PART 2 - PRODUCTS (Not Used)

247 PART 3 - EXECUTION (Not Used)

248 END OF SECTION 013100

1 SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes administrative and procedural requirements for documenting the progress
8 of construction during performance of the Work, including the following:

- 9 1. Preliminary Construction Schedule.
10 2. Contractor's Construction Schedule.
11 3. Submittals Schedule.
12 4. Daily construction reports.
13 5. Material location reports.
14 6. Field condition reports.
15 7. Special reports.

- 16 B. Related Sections include the following:

- 17 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
18 2. Division 01 Section "Project Management and Coordination" for submitting and
19 distributing meeting and conference minutes.
20 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
21 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and
22 inspections.

23 1.3 DEFINITIONS

- 24 A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring,
25 and controlling the construction project. Activities included in a construction schedule consume
26 time and resources.

- 27 1. Critical activities are activities on the critical path. They must start and finish on the
28 planned early start and finish times.
29 2. Predecessor Activity: An activity that precedes another activity in the network.
30 3. Successor Activity: An activity that follows another activity in the network.

- 31 B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as
32 scheduled. The sum of costs for all activities must equal the total Contract Sum, unless
33 otherwise approved by Architect.

- 34 C. CPM: Critical path method, which is a method of planning and scheduling a construction
35 project where activities are arranged based on activity relationships. Network calculations
36 determine when activities can be performed and the critical path of Project.
- 37 D. Critical Path: The longest connected chain of interdependent activities through the network
38 schedule that establishes the minimum overall Project duration and contains no float.
- 39 E. Event: The starting or ending point of an activity.
- 40 F. Float: The measure of leeway in starting and completing an activity.
- 41 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a
42 jointly owned, expiring Project resource available to both parties as needed to meet
43 schedule milestones and Contract completion date.
- 44 2. Free float is the amount of time an activity can be delayed without adversely affecting the
45 early start of the successor activity.
- 46 3. Total float is the measure of leeway in starting or completing an activity without
47 adversely affecting the planned Project completion date.
- 48 G. Fagnet: A partial or fragmentary network that breaks down activities into smaller activities for
49 greater detail.
- 50 H. Major Area: A story of construction, a separate building, or a similar significant construction
51 element.
- 52 I. Milestone: A key or critical point in time for reference or measurement.
- 53 J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity
54 relationships.
- 55 K. Resource Loading: The allocation of manpower and equipment necessary for the completion of
56 an activity as scheduled.
- 57 1.4 SUBMITTALS
- 58 A. Qualification Data: For scheduling consultant.
- 59 B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a
60 tabular format:
- 61 1. Scheduled date for first submittal.
- 62 2. Specification Section number and title.
- 63 3. Submittal category (action or informational).
- 64 4. Name of subcontractor.
- 65 5. Description of the Work covered.
- 66 6. Scheduled date for Architect's final release or approval.
- 67 C. Preliminary Construction Schedule: Submit two opaque copies.

- 68 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of
69 Schedule of Values for cost-loaded activities.
- 70 D. Preliminary Network Diagram: Submit two opaque copies, large enough to show entire
71 network for entire construction period. Show logic ties for activities.
- 72 E. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large
73 enough to show entire schedule for entire construction period.
- 74 1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to
75 comply with requirements for submittals. Include type of schedule (Initial or Updated)
76 and date on label.
- 77 F. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following
78 computer-generated reports. Format for each activity in reports shall contain activity number,
79 activity description, cost and resource loading, original duration, remaining duration, early start
80 date, early finish date, late start date, late finish date, and total float in calendar days.
- 81 1. Activity Report: List of all activities sorted by activity number and then early start date,
82 or actual start date if known.
- 83 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in
84 ascending order by activity number and then early start date, or actual start date if known.
- 85 3. Total Float Report: List of all activities sorted in ascending order of total float.
- 86 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed
87 until most recent Application for Payment.
- 88 G. Daily Construction Reports: Submit two copies at weekly intervals.
- 89 H. Material Location Reports: Submit two copies at weekly intervals.
- 90 I. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- 91 J. Special Reports: Submit two copies at time of unusual event.
- 92 1.5 QUALITY ASSURANCE
- 93 A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and
94 reporting, with capability of producing CPM reports and diagrams within 24 hours of
95 Architect's request.
- 96 B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in
97 Division 01 Section "Project Management and Coordination." Review methods and procedures
98 related to the Preliminary Construction Schedule and Contractor's Construction Schedule,
99 including, but not limited to, the following:
- 100 1. Review software limitations and content and format for reports.
- 101 2. Verify availability of qualified personnel needed to develop and update schedule.
- 102 3. Discuss constraints, including phasing, work stages, area separations and interim
103 milestones.

- 104 4. Review time required for review of submittals and resubmittals.
105 5. Review requirements for tests and inspections by independent testing and inspecting
106 agencies.
107 6. Review time required for completion and startup procedures.
108 7. Review and finalize list of construction activities to be included in schedule.
109 8. Review submittal requirements and procedures.
110 9. Review procedures for updating schedule.

111 1.6 COORDINATION

112 A. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of
113 subcontracts, Submittals Schedule, progress reports, payment requests, and other required
114 schedules and reports.

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

119 PART 2 - PRODUCTS

120 2.1 SUBMITTALS SCHEDULE

121 A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required
122 by construction schedule. Include time required for review, resubmittal, ordering,
123 manufacturing, fabrication, and delivery when establishing dates.

- 124 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and
125 Contractor's Construction Schedule.
126 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include
127 submittals required during the first 60 days of construction. List those required to
128 maintain orderly progress of the Work and those required early because of long lead time
129 for manufacture or fabrication.

130 a. At Contractor's option, show submittals on the Preliminary Construction Schedule,
131 instead of tabulating them separately.

132 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's
133 Construction Schedule.

134 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

135 A. Procedures: Comply with procedures contained in AGC's "Construction Planning &
136 Scheduling."

- 137 B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final
138 Completion.
- 139 1. Contract completion date shall not be changed by submission of a schedule that shows an
140 early completion date, unless specifically authorized by Change Order.
- 141 C. Activities: Treat each story or separate area as a separate numbered activity for each principal
142 element of the Work. Comply with the following:
- 143 1. Activity Duration: Define activities so no activity is longer than 20 days, unless
144 specifically allowed by Architect.
- 145 2. Procurement Activities: Include procurement process activities for the following long
146 lead items and major items, requiring a cycle of more than 60 days, as separate activities
147 in schedule. Procurement cycle activities include, but are not limited to, submittals,
148 approvals, purchasing, fabrication, and delivery.
- 149 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01
150 Section "Submittal Procedures" in schedule. Coordinate submittal review times in
151 Contractor's Construction Schedule with Submittals Schedule.
- 152 4. Startup and Testing Time: Include not less than 5 days for startup and testing.
- 153 5. Substantial Completion: Indicate completion in advance of date established for
154 Substantial Completion, and allow time for Architect's administrative procedures
155 necessary for certification of Substantial Completion.
- 156 D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and
157 as follows in schedule, and show how the sequence of the Work is affected.
- 158 1. Phasing: Arrange list of activities on schedule by phase.
- 159 2. Products Ordered in Advance: Include a separate activity for each product. Include
160 delivery date indicated in Division 01 Section "Summary." Delivery dates indicated
161 stipulate the earliest possible delivery date.
- 162 3. Work Restrictions: Show the effect of the following items on the schedule:
- 163 a. Coordination with existing construction.
- 164 b. Limitations of continued occupancies.
- 165 c. Uninterruptible services.
- 166 d. Use of premises restrictions.
- 167 e. Provisions for future construction.
- 168 f. Seasonal variations.
- 169 g. Environmental control.
- 170 4. Work Stages: Indicate important stages of construction for each major portion of the
171 Work, including, but not limited to, the following:
- 172 a. Subcontract awards.
- 173 b. Submittals.
- 174 c. Purchases.
- 175 d. Mockups.
- 176 e. Fabrication.
- 177 f. Sample testing.

- 178 g. Deliveries.
179 h. Installation.
180 i. Tests and inspections.
181 j. Adjusting.
182 k. Curing.
183 l. Startup and placement into final use and operation.
- 184 5. Area Separations: Identify each major area of construction for each major portion of the
185 Work. Indicate where each construction activity within a major area must be sequenced
186 or integrated with other construction activities to provide for the following:
- 187 a. Structural completion.
188 b. Permanent space enclosure.
189 c. Completion of mechanical installation.
190 d. Completion of electrical installation.
191 e. Substantial Completion.
- 192 E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but
193 not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- 194 1. Completion of Phase 1
195 2. Completion of Phase 2.
- 196 F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned
197 and actual costs. On the line, show dollar volume of the Work performed as of dates used for
198 preparation of payment requests.
- 199 1. Refer to Division 01 Section "Payment Procedures" for cost reporting and payment
200 procedures.
201 2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall
202 not be assigned to submittal activities unless specified otherwise but may, with
203 Architect's approval, be assigned to fabrication and delivery activities. Costs shall be
204 under required principal subcontracts for testing and commissioning activities, operation
205 and maintenance manuals, punch list activities, Project Record Documents, and
206 demonstration and training (if applicable), in the amount of 5 percent of the Contract
207 Sum.
208 3. Each activity cost shall reflect an accurate value subject to approval by Architect.
209 4. Total cost assigned to activities shall equal the total Contract Sum.
- 210 G. Contract Modifications: For each proposed contract modification and concurrent with its
211 submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the
212 proposed change on the overall project schedule.
- 213 H. Computer Software: Prepare schedules using a program that has been developed specifically to
214 manage construction schedules.

- 215 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)
- 216 A. General: Prepare network diagrams using AON (activity-on-node) format.
- 217 B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the
218 Notice to Proceed. Outline significant construction activities for the first 60 days of
219 construction. Include skeleton diagram for the remainder of the Work and a cash requirement
220 prediction based on indicated activities.
- 221 C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, cost- and
222 resource-loaded, time-scaled CPM network analysis diagram for the Work.
- 223 1. Develop network diagram in sufficient time to submit CPM schedule so it can be
224 accepted for use no later than 30 days after date established for the Notice to Proceed.
- 225 a. Failure to include any work item required for performance of this Contract shall
226 not excuse Contractor from completing all work within applicable completion
227 dates, regardless of Architect's approval of the schedule.
- 228 2. Conduct educational workshops to train and inform key Project personnel, including
229 subcontractors' personnel, in proper methods of providing data and using CPM schedule
230 information.
- 231 3. Establish procedures for monitoring and updating CPM schedule and for reporting
232 progress. Coordinate procedures with progress meeting and payment request dates.
- 233 4. Use "one workday" as the unit of time. Include list of nonworking days and holidays
234 incorporated into the schedule.
- 235 D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work.
236 Using the preliminary network diagram, prepare a skeleton network to identify probable critical
237 paths.
- 238 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship
239 of each activity in relation to other activities. Include estimated time frames for the
240 following activities:
- 241 a. Preparation and processing of submittals.
242 b. Mobilization and demobilization.
243 c. Purchase of materials.
244 d. Delivery.
245 e. Fabrication.
246 f. Utility interruptions.
247 g. Installation.
248 h. Work by Owner that may affect or be affected by Contractor's activities.
249 i. Testing and commissioning.
- 250 2. Critical Path Activities: Identify critical path activities, including those for interim
251 completion dates. Scheduled start and completion dates shall be consistent with Contract
252 milestone dates.

- 253 3. Processing: Process data to produce output data on a computer-drawn, time-scaled
254 network. Revise data, reorganize activity sequences, and reproduce as often as necessary
255 to produce the CPM schedule within the limitations of the Contract Time.
- 256 4. Format: Mark the critical path. Locate the critical path near center of network; locate
257 paths with most float near the edges.
- 258 a. Subnetworks on separate sheets are permissible for activities clearly off the critical
259 path.
- 260 E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total
261 float" sort. Identify critical activities. Prepare tabulated reports showing the following:
- 262 1. Contractor or subcontractor and the Work or activity.
263 2. Description of activity.
264 3. Principal events of activity.
265 4. Immediate preceding and succeeding activities.
266 5. Early and late start dates.
267 6. Early and late finish dates.
268 7. Activity duration in workdays.
269 8. Total float or slack time.
270 9. Average size of workforce.
271 10. Dollar value of activity (coordinated with the Schedule of Values).
- 272 F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports
273 showing the following:
- 274 1. Identification of activities that have changed.
275 2. Changes in early and late start dates.
276 3. Changes in early and late finish dates.
277 4. Changes in activity durations in workdays.
278 5. Changes in the critical path.
279 6. Changes in total float or slack time.
280 7. Changes in the Contract Time.
- 281 G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
- 282 1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar
283 value.
284 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative
285 dollar value.
286 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as
287 of list date.
288 4. Prepare list for ease of comparison with payment requests; coordinate timing with
289 progress meetings.
- 290 a. In both value summary lists, tabulate "actual percent complete" and "cumulative
291 value completed" with total at bottom.
292 b. Submit value summary printouts one week before each regularly scheduled
293 progress meeting.

294 2.4 REPORTS

295 A. Daily Construction Reports: Prepare a daily construction report recording the following
296 information concerning events at Project site:

- 297 1. List of subcontractors at Project site.
- 298 2. List of separate contractors at Project site.
- 299 3. Approximate count of personnel at Project site.
- 300 4. Equipment at Project site.
- 301 5. Material deliveries.
- 302 6. High and low temperatures and general weather conditions.
- 303 7. Accidents.
- 304 8. Meetings and significant decisions.
- 305 9. Unusual events (refer to special reports).
- 306 10. Stoppages, delays, shortages, and losses.
- 307 11. Meter readings and similar recordings.
- 308 12. Emergency procedures.
- 309 13. Orders and requests of authorities having jurisdiction.
- 310 14. Change Orders received and implemented.
- 311 15. **[Construction]** **[Work]** Change Directives received and implemented.
- 312 16. Services connected and disconnected.
- 313 17. Equipment or system tests and startups.
- 314 18. Partial Completions and occupancies.
- 315 19. Substantial Completions authorized.

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

321 C. Field Condition Reports: Immediately on discovery of a difference between field conditions
322 and the Contract Documents, prepare and submit a detailed report. Submit with a request for
323 interpretation. Include a detailed description of the differing conditions, together with
324 recommendations for changing the Contract Documents.

325 2.5 SPECIAL REPORTS

326 A. General: Submit special reports directly to Owner within one day(s) of an occurrence.
327 Distribute copies of report to parties affected by the occurrence.

328 B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at
329 Project site, whether or not related directly to the Work, prepare and submit a special report.
330 List chain of events, persons participating, response by Contractor's personnel, evaluation of
331 results or effects, and similar pertinent information. Advise Owner in advance when these
332 events are known or predictable.

333 PART 3 - EXECUTION

334 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

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

337 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor
338 employs skilled personnel with experience in CPM scheduling and reporting techniques.
339 Submit qualifications.

340 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress,
341 alleged delays, and time impact.

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

345 1. Revise schedule immediately after each meeting or other activity where revisions have
346 been recognized or made. Issue updated schedule concurrently with the report of each
347 such meeting.

348 2. Include a report with updated schedule that indicates every change, including, but not
349 limited to, changes in logic, durations, actual starts and finishes, and activity durations.

350 3. As the Work progresses, indicate Actual Completion percentage for each activity.

351 C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors,
352 testing and inspecting agencies, and other parties identified by Contractor with a need-to-know
353 schedule responsibility.

354 1. Post copies in Project meeting rooms and temporary field offices.

355 2. When revisions are made, distribute updated schedules to the same parties and post in the
356 same locations. Delete parties from distribution when they have completed their assigned
357 portion of the Work and are no longer involved in performance of construction activities.

358 END OF SECTION 013200

1 SECTION 013300 - SUBMITTAL PROCEDURES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes administrative and procedural requirements for submitting Shop
8 Drawings, Product Data, Samples, and other submittals.

9 1.3 DEFINITIONS

- 10 A. Action Submittals: Written and graphic information that requires Architect's and Construction
11 Manager's responsive action.

- 12 B. Informational Submittals: Written information that does not require Architect's and
13 Construction Manager's responsive action. Submittals may be rejected for not complying with
14 requirements.

15 1.4 SUBMITTAL PROCEDURES

- 16 A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by
17 Architect for Contractor's use in preparing submittals.

- 18 B. Coordination: Coordinate preparation and processing of submittals with performance of
19 construction activities.

- 20 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other
21 submittals, and related activities that require sequential activity.
22 2. Coordinate transmittal of different types of submittals for related parts of the Work so
23 processing will not be delayed because of need to review submittals concurrently for
24 coordination.

- 25 a. Architect reserves the right to withhold action on a submittal requiring
26 coordination with other submittals until related submittals are received.

- 27 C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress
28 Documentation" for list of submittals and time requirements for scheduled performance of
29 related construction activities.

- 30 D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as
31 follows. Time for review shall commence on Architect's receipt of submittal. No extension of
32 the Contract Time will be authorized because of failure to transmit submittals enough in
33 advance of the Work to permit processing, including resubmittals.
- 34 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time
35 if coordination with subsequent submittals is required. Architect will advise Contractor
36 when a submittal being processed must be delayed for coordination.
- 37 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner
38 as initial submittal.
- 39 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
- 40 4. Sequential Review: Where sequential review of submittals by Architect's consultants,
41 Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- 42 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals
43 may be transmitted simultaneously to Architect and to Architect's consultants, allow 15
44 days for review of each submittal. Submittal will be returned to Architect before being
45 returned to Contractor.
- 46 E. Identification: Place a permanent label or title block on each submittal for identification.
- 47 1. Indicate name of firm or entity that prepared each submittal on label or title block.
- 48 2. Provide a space approximately **6 by 8 inches (150 by 200 mm)** on label or beside title
49 block to record Contractor's review and approval markings and action taken by Architect.
- 50 3. Include the following information on label for processing and recording action taken:
- 51 a. Project name.
- 52 b. Date.
- 53 c. Name and address of Architect.
- 54 d. Name and address of Contractor.
- 55 e. Name and address of subcontractor.
- 56 f. Name and address of supplier.
- 57 g. Name of manufacturer.
- 58 h. Submittal number or other unique identifier, including revision identifier.
- 59 1) Submittal number shall use Specification Section number followed by a
60 decimal point and then a sequential number (e.g., 06100.01). Resubmittals
61 shall include an alphabetic suffix after another decimal point (e.g.,
62 06100.01.A).
- 63 i. Number and title of appropriate Specification Section.
- 64 j. Drawing number and detail references, as appropriate.
- 65 k. Location(s) where product is to be installed, as appropriate.
- 66 l. Other necessary identification.
- 67 F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract
68 Documents on submittals.

- 69 G. Additional Copies: Unless additional copies are required for final submittal, and unless
70 Architect observes noncompliance with provisions in the Contract Documents, initial submittal
71 may serve as final submittal.
- 72 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of
73 copies to Architect.
- 74 2. Additional copies submitted for maintenance manuals will be marked with action taken
75 and will be returned.
- 76 H. Transmittal: Package each submittal individually and appropriately for transmittal and
77 handling. Transmit each submittal using a transmittal form. Architect will discard submittals
78 received from sources other than Contractor.
- 79 1. Transmittal Form: Use AIA Document G810.
- 80 2. Transmittal Form: Provide locations on form for the following information:
- 81 a. Project name.
- 82 b. Date.
- 83 c. Destination (To:).
- 84 d. Source (From:).
- 85 e. Names of subcontractor, manufacturer, and supplier.
- 86 f. Category and type of submittal.
- 87 g. Submittal purpose and description.
- 88 h. Specification Section number and title.
- 89 i. Drawing number and detail references, as appropriate.
- 90 j. Transmittal number[, **numbered consecutively**].
- 91 k. Submittal and transmittal distribution record.
- 92 l. Remarks.
- 93 m. Signature of transmitter.
- 94 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant
95 information, requests for data, revisions other than those requested by Architect on
96 previous submittals, and deviations from requirements in the Contract Documents,
97 including minor variations and limitations. Include same label information as related
98 submittal.
- 99 I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 100 1. Note date and content of previous submittal.
- 101 2. Note date and content of revision in label or title block and clearly indicate extent of
102 revision.
- 103 3. Resubmit submittals until they are marked "No Exceptions Taken" or "Note Markings."
- 104 J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers,
105 fabricators, installers, authorities having jurisdiction, and others as necessary for performance of
106 construction activities. Show distribution on transmittal forms.
- 107 K. Use for Construction: Use only final submittals with mark indicating "No Exceptions Taken"
108 or Note Markings" taken by Architect.

109 1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

110 A. General: At Contractor's written request, copies of Architect's CAD files will be provided to
111 Contractor for Contractor's use in connection with Project, subject to the following conditions:

112 1. Architect's CAD files are believed to be accurate to the information currently available.
113 Conditions in the field often deviate slightly, therefore must do adequate field
114 investigation and field dimensioning and revise DWG files as necessary with newly
115 obtained information such that the work is co-ordinated to existing (and new) field
116 conditions not simply to Architect's DWG files.

117 PART 2 - PRODUCTS

118 2.1 ACTION SUBMITTALS

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

120 B. Product Data: Collect information into a single submittal for each element of construction and
121 type of product or equipment.

122 1. If information must be specially prepared for submittal because standard printed data are
123 not suitable for use, submit as Shop Drawings, not as Product Data.
124 2. Mark each copy of each submittal to show which products and options are applicable.
125 3. Include the following information, as applicable:

- 126 a. Manufacturer's written recommendations.
- 127 b. Manufacturer's product specifications.
- 128 c. Manufacturer's installation instructions.
- 129 d. Standard color charts.
- 130 e. Manufacturer's catalog cuts.
- 131 f. Wiring diagrams showing factory-installed wiring.
- 132 g. Printed performance curves.
- 133 h. Operational range diagrams.
- 134 i. Mill reports.
- 135 j. Standard product operation and maintenance manuals.
- 136 k. Compliance with specified referenced standards.
- 137 l. Testing by recognized testing agency.
- 138 m. Application of testing agency labels and seals.
- 139 n. Notation of coordination requirements.

140 4. Submit Product Data before or concurrent with Samples.

141 5. Number of Copies: Submit five (5) copies of Product Data, unless otherwise indicated.
142 Architect, will return two (2) copies. Mark up and retain one returned copy as a Project
143 Record Document.

144 C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base
145 Shop Drawings on reproductions of the Contract Documents or standard printed data. See also
146 paragraph 013300-1.5-A-1.

- 147 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the
148 following information, as applicable:
- 149 a. Dimensions.
150 b. Identification of products.
151 c. Fabrication and installation drawings.
152 d. Roughing-in and setting diagrams.
153 e. Wiring diagrams showing field-installed wiring, including power, signal, and
154 control wiring.
155 f. Shopwork manufacturing instructions.
156 g. Templates and patterns.
157 h. Schedules.
158 i. Design calculations.
159 j. Compliance with specified standards.
160 k. Notation of coordination requirements.
161 l. Notation of dimensions established by field measurement.
162 m. Relationship to adjoining construction clearly indicated.
163 n. Seal and signature of professional engineer if specified.
164 o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed
165 wiring.
- 166 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop
167 Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by
168 40 inches (750 by 1000 mm).
- 169 3. Number of Copies: Submit five (5) opaque copies of each submittal. Architect will
170 retain two (2) copies; remainder will be returned. Mark up and retain one returned copy
171 as a Project Record Drawing.
- 172 D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these
173 characteristics with other elements and for a comparison of these characteristics between
174 submittal and actual component as delivered and installed.
- 175 1. Transmit Samples that contain multiple, related components such as accessories together
176 in one submittal package.
177 2. Identification: Attach label on unexposed side of Samples that includes the following:
- 178 a. Generic description of Sample.
179 b. Product name and name of manufacturer.
180 c. Sample source.
181 d. Number and title of appropriate Specification Section.
- 182 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-
183 control comparisons throughout the course of construction activity. Sample sets may be
184 used to determine final acceptance of construction associated with each set.
- 185 a. Samples that may be incorporated into the Work are indicated in individual
186 Specification Sections. Such Samples must be in an undamaged condition at time
187 of use.
188 b. Samples not incorporated into the Work, or otherwise designated as Owner's
189 property, are the property of Contractor.

- 190 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or
191 sections of units showing the full range of colors, textures, and patterns available.
- 192 a. Number of Samples: Submit one full set(s) of available choices where color,
193 pattern, texture, or similar characteristics are required to be selected from
194 manufacturer's product line. Architect, will return submittal with options selected.
- 195 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared
196 from same material to be used for the Work, cured and finished in manner specified, and
197 physically identical with material or product proposed for use, and that show full range of
198 color and texture variations expected. Samples include, but are not limited to, the
199 following: partial sections of manufactured or fabricated components; small cuts or
200 containers of materials; complete units of repetitively used materials; swatches showing
201 color, texture, and pattern; color range sets; and components used for independent testing
202 and inspection.
- 203 a. Number of Samples: Submit three sets of Samples. Architect will retain two
204 Sample sets; remainder will be returned. Mark up and retain one returned Sample
205 set as a Project Record Sample.
- 206 1) Submit a single Sample where assembly details, workmanship, fabrication
207 techniques, connections, operation, and other similar characteristics are to
208 be demonstrated.
- 209 2) If variation in color, pattern, texture, or other characteristic is inherent in
210 material or product represented by a Sample, submit at least three sets of
211 paired units that show approximate limits of variations.
- 212 E. Product Schedule or List: As required in individual Specification Sections, prepare a written
213 summary indicating types of products required for the Work and their intended location.
214 Include the following information in tabular form:
- 215 1. Type of product. Include unique identifier for each product.
216 2. Number and name of room or space.
217 3. Location within room or space.
218 4. Number of Copies: Submit three copies of product schedule or list, unless otherwise
219 indicated. Architect will return two copies.
- 220 a. Mark up and retain one returned copy as a Project Record Document.
- 221 F. Contractor's Construction Schedule: Comply with requirements specified in Division 01
222 Section "Construction Progress Documentation" for Construction Manager's action.
- 223 G. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction
224 Progress Documentation."
- 225 H. Application for Payment: Comply with requirements specified in Division 01 Section
226 "Payment Procedures."
- 227 I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment
228 Procedures."

- 229 J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each
230 portion of the Work, including those who are to furnish products or equipment fabricated to a
231 special design. Include the following information in tabular form:
- 232 1. Name, address, and telephone number of entity performing subcontract or supplying
233 products.
 - 234 2. Number and title of related Specification Section(s) covered by subcontract.
 - 235 3. Drawing number and detail references, as appropriate, covered by subcontract.
 - 236 4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated.
237 Architect will return two copies.
- 238 a. Mark up and retain one returned copy as a Project Record Document.
- 239 2.2 INFORMATIONAL SUBMITTALS
- 240 A. General: Prepare and submit Informational Submittals required by other Specification Sections.
- 241 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated.
242 Architect will not return copies.
 - 243 2. Certificates and Certifications: Provide a notarized statement that includes signature of
244 entity responsible for preparing certification. Certificates and certifications shall be
245 signed by an officer or other individual authorized to sign documents on behalf of that
246 entity.
 - 247 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section
248 "Quality Requirements."
- 249 B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project
250 Management and Coordination."
- 251 C. Contractor's Construction Schedule: Comply with requirements specified in Division 01
252 Section "Construction Progress Documentation."
- 253 D. Qualification Data: Prepare written information that demonstrates capabilities and experience
254 of firm or person. Include lists of completed projects with project names and addresses, names
255 and addresses of architects and owners, and other information specified.
- 256 E. Welding Certificates: Prepare written certification that welding procedures and personnel
257 comply with requirements in the Contract Documents. Submit record of Welding Procedure
258 Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include
259 names of firms and personnel certified.
- 260 F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that
261 Installer complies with requirements in the Contract Documents and, where required, is
262 authorized by manufacturer for this specific Project.
- 263 G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying
264 that manufacturer complies with requirements in the Contract Documents. Include evidence of
265 manufacturing experience where required.

- 266 H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that
267 product complies with requirements in the Contract Documents.
- 268 I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that
269 material complies with requirements in the Contract Documents.
- 270 J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's
271 standard form, indicating and interpreting test results of material for compliance with
272 requirements in the Contract Documents.
- 273 K. Product Test Reports: Prepare written reports indicating current product produced by
274 manufacturer complies with requirements in the Contract Documents. Base reports on
275 evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or
276 on comprehensive tests performed by a qualified testing agency.
- 277 L. Research/Evaluation Reports: Prepare written evidence, from a model code organization
278 acceptable to authorities having jurisdiction, that product complies with building code in effect
279 for Project. Include the following information:
- 280 1. Name of evaluation organization.
 - 281 2. Date of evaluation.
 - 282 3. Time period when report is in effect.
 - 283 4. Product and manufacturers' names.
 - 284 5. Description of product.
 - 285 6. Test procedures and results.
 - 286 7. Limitations of use.
- 287 M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section
288 "Quality Requirements."
- 289 N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing
290 agency's standard form, indicating and interpreting results of tests performed before installation
291 of product, for compliance with performance requirements in the Contract Documents.
- 292 O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing
293 agency's standard form, indicating and interpreting results of compatibility tests performed
294 before installation of product. Include written recommendations for primers and substrate
295 preparation needed for adhesion.
- 296 P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's
297 standard form, indicating and interpreting results of field tests performed either during
298 installation of product or after product is installed in its final location, for compliance with
299 requirements in the Contract Documents.
- 300 Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and
301 normal maintenance of products and equipment. Comply with requirements specified in
302 Division 01 Section "Operation and Maintenance Data."
- 303 R. Design Data: Prepare written and graphic information, including, but not limited to,
304 performance and design criteria, list of applicable codes and regulations, and calculations.

- 305 Include list of assumptions and other performance and design criteria and a summary of loads.
306 Include load diagrams if applicable. Provide name and version of software, if any, used for
307 calculations. Include page numbers.
- 308 S. Manufacturer's Instructions: Prepare written or published information that documents
309 manufacturer's recommendations, guidelines, and procedures for installing or operating a
310 product or equipment. Include name of product and name, address, and telephone number of
311 manufacturer. Include the following, as applicable:
- 312 1. Preparation of substrates.
 - 313 2. Required substrate tolerances.
 - 314 3. Sequence of installation or erection.
 - 315 4. Required installation tolerances.
 - 316 5. Required adjustments.
 - 317 6. Recommendations for cleaning and protection.
- 318 T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized
319 service representative's tests and inspections. Include the following, as applicable:
- 320 1. Name, address, and telephone number of factory-authorized service representative
321 making report.
 - 322 2. Statement on condition of substrates and their acceptability for installation of product.
 - 323 3. Statement that products at Project site comply with requirements.
 - 324 4. Summary of installation procedures being followed, whether they comply with
325 requirements and, if not, what corrective action was taken.
 - 326 5. Results of operational and other tests and a statement of whether observed performance
327 complies with requirements.
 - 328 6. Statement whether conditions, products, and installation will affect warranty.
 - 329 7. Other required items indicated in individual Specification Sections.
- 330 U. Insurance Certificates and Bonds: Prepare written information indicating current status of
331 insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of
332 coverage, amounts of deductibles, if any, and term of the coverage.
- 333 V. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to
334 Architect, except as required in "Action Submittals" Article.
- 335 1. Architect will not review submittals that include MSDSs and will return the entire
336 submittal for resubmittal.
- 337 2.3 DELEGATED DESIGN
- 338 A. Performance and Design Criteria: Where professional design services or certifications by a
339 design professional are specifically required of Contractor by the Contract Documents, provide
340 products and systems complying with specific performance and design criteria indicated.
- 341 1. If criteria indicated are not sufficient to perform services or certification required, submit
342 a written request for additional information to Architect.

343 B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required
344 submittals, submit three copies of a statement, signed and sealed by the responsible design
345 professional, for each product and system specifically assigned to Contractor to be designed or
346 certified by a design professional.

347 1. Indicate that products and systems comply with performance and design criteria in the
348 Contract Documents. Include list of codes, loads, and other factors used in performing
349 these services.

350 PART 3 - EXECUTION

351 3.1 CONTRACTOR'S REVIEW

352 A. Review each submittal and check for coordination with other Work of the Contract and for
353 compliance with the Contract Documents. Note corrections and field dimensions. Mark with
354 approval stamp before submitting to Architect.

355 B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name
356 and location, submittal number, Specification Section title and number, name of reviewer, date
357 of Contractor's approval, and statement certifying that submittal has been reviewed, checked,
358 and approved for compliance with the Contract Documents.

359 3.2 ARCHITECT'S/ ACTION

360 A. General: Architect will not review submittals that do not bear Contractor's approval stamp and
361 will return them without action.

362 B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or
363 modifications required, and return it. Architect will stamp each submittal with an action stamp
364 and will mark stamp appropriately to indicate action taken.

365 C. Informational Submittals: Architect will review each submittal and will not return it, or will
366 return it if it does not comply with requirements. Architect will forward each submittal to
367 appropriate party.

368 D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned
369 without review.

370 E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

371 END OF SECTION 013300

1 SECTION 014200 - REFERENCES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 DEFINITIONS

- 7 A. General: Basic Contract definitions are included in the Conditions of the Contract.
- 8 B. "Approved": When used to convey Architect's action on Contractor's submittals, applications,
9 and requests, "approved" is limited to Architect's duties and responsibilities as stated in the
10 Conditions of the Contract.
- 11 C. "Directed": A command or instruction by Architect. Other terms including "requested,"
12 "authorized," "selected," "approved," "required," and "permitted" have the same meaning as
13 "directed."
- 14 D. "Indicated": Requirements expressed by graphic representations or in written form on
15 Drawings, in Specifications, and in other Contract Documents. Other terms including "shown,"
16 "noted," "scheduled," and "specified" have the same meaning as "indicated."
- 17 E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having
18 jurisdiction, and rules, conventions, and agreements within the construction industry that control
19 performance of the Work.
- 20 F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly,
21 installation, and similar operations.
- 22 G. "Install": Operations at Project site including unloading, temporarily storing, unpacking,
23 assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing,
24 protecting, cleaning, and similar operations.
- 25 H. "Provide": Furnish and install, complete and ready for the intended use.
- 26 I. "Project Site": Space available for performing construction activities. The extent of Project site
27 is shown on Drawings and may or may not be identical with the description of the land on
28 which Project is to be built.

29 1.3 INDUSTRY STANDARDS

30 A. Applicability of Standards: Unless the Contract Documents include more stringent
31 requirements, applicable construction industry standards have the same force and effect as if
32 bound or copied directly into the Contract Documents to the extent referenced. Such standards
33 are made a part of the Contract Documents by reference.

34 B. Publication Dates: Comply with standards in effect as of date of the Contract Documents,
35 unless otherwise indicated.

36 C. Copies of Standards: Each entity engaged in construction on Project should be familiar with
37 industry standards applicable to its construction activity. Copies of applicable standards are not
38 bound with the Contract Documents.

39 1. Where copies of standards are needed to perform a required construction activity, obtain
40 copies directly from publication source.

41 D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and
42 acronyms are used in Specifications or other Contract Documents, they shall mean the
43 recognized name of the standards and regulations in the following list. Names, telephone
44 numbers, and Web-site addresses are subject to change and are believed to be accurate and up-
45 to-date as of the date of the Contract Documents.

46 PRIVATE tbl1

ADAAG Americans with Disabilities Act (ADA) (800) 872-2253

Architectural Barriers Act (ABA)
Accessibility Guidelines for Buildings and Facilities (202) 272-0080

Available from Access Board
www.access-board.gov

CFR Code of Federal Regulations (888) 293-6498

Available from Government Printing Office (202) 512-1530

www.gpoaccess.gov/cfr/index.html

CRD Handbook for Concrete and Cement (601) 634-2355

Available from Army Corps of Engineers
Waterways Experiment Station
www.wes.army.mil

DOD Department of Defense Military Specifications and Standards (215) 697-6257

Available from Department of Defense Single Stock Point
www.dodssp.daps.mil

DSCC Defense Supply Center Columbus
(See FS)

52 B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other
53 Contract Documents, they shall mean the recognized name of the entities in the following list.
54 Names, telephone numbers, and Web-site addresses are subject to change and are believed to be
55 accurate and up-to-date as of the date of the Contract Documents.

56 PRIVATE tbl2

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	ACI International (American Concrete Institute) www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association (Now part of CPA)	

AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers	(800) 548-2723

**Welsh Humanities Building Ground Floor Renovation
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**3/30/12
H27-I976**

	www.asce.org	(703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCSC)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(334) 874-9800
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI www.bicsi.org	(813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963

BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(773) 761-4100
	Cast Stone Institute www.caststone.org	(770) 972-3011
CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca/connections_online/home.htm	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CGSB	Canadian General Standards Board w3.pwgsc.gc.ca/cgsb	(800) 665-2472 (819) 956-0425
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200

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CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(800) 463-6727 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.asce.org	(800) 548-2723 (703) 295-6300
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association www.esda.org	(315) 339-6937
FCI	Fluid Controls Institute www.fluidcontrolsintitute.org	(216) 241-7333
FIBA	Federation Internationale de Basketball Amateur (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM	Factory Mutual System (Now FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000

FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridarroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	52 951 5146905
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Now GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation www.intbadfed.org	441-24 223-4904
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369

ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance (The) www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(702) 567-8150
ITS	Intertek www.intertek.com	(800) 345-3851 (607) 753-6711
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association	(312) 644-6610

	www.metalframingmfg.org	
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193 ext. 453
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550

NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(303) 697-8441
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association www.nofma.org	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association	(800) 342-1415

	www.nssga.org	(703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWWDA	National Wood Window and Door Association (Now WDMA)	
OPL	Omega Point Laboratories, Inc. www.opl.com	(800) 966-5253 (210) 635-8100
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
RTI	(Formerly: NTRMA - National Tile Roofing Manufacturers Association) (Now TRI)	
SAE	SAE International www.sae.org	(724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 462-1930
SDI	Steel Door Institute	(440) 899-0010

	www.steeldoor.org	
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(516) 294-5424
SEI	Structural Engineering Institute www.seinstitute.com	(800) 548-2723 (703) 295-6195
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPI/ SPFD	Society of the Plastics Industry, Inc. (The) Spray Polyurethane Foam Division (Now SPFA)	
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630

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SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 705-9898
TRI	Tile Roofing Institute (Formerly: RTI - Roof Tile Institute) www.tilerroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(800) 285-4476 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(202) 828-7422
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTECH	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700

WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Now WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 661-4261
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 548-0112
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

57 C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract
58 Documents, they shall mean the recognized name of the entities in the following list. Names,
59 telephone numbers, and Web-site addresses are subject to change and are believed to be
60 accurate and up-to-date as of the date of the Contract Documents.

61 PRIVATE tbl3

BOCA BOCA International, Inc.
(See ICC)

CABO Council of American Building Officials
(See ICC)

IAPMO International Association of Plumbing and Mechanical Officials (909) 472-4100
www.iapmo.org

ICBO International Conference of Building Officials

(See ICC)

ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)	
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.iccsafe.org	(703) 931-4533
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543
NES	National Evaluation Service (See ICC-ES)	
SBCCI	Southern Building Code Congress International, Inc. (See ICC)	

62 D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications
63 or other Contract Documents, they shall mean the recognized name of the entities in the
64 following list. Names, telephone numbers, and Web-site addresses are subject to change and
65 are believed to be accurate and up-to-date as of the date of the Contract Documents.

66 PRIVATE tbl4

CE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-6816
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense www.dodssp.daps.mil	(215) 697-6257
DOE	Department of Energy www.eren.doe.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(202) 366-4000
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322

FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111 (202) 501-1888
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
PHS	Office of Public Health and Science http://phs.os.dhhs.gov	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

67 E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or
68 other Contract Documents, they shall mean the recognized name of the entities in the following
69 list. Names, telephone numbers, and Web-site addresses are subject to change and are believed
70 to be accurate and up-to-date as of the date of the Contract Documents.

71 PRIVATE tbl5

CBHF State of California, Department of Consumer Affairs (800) 952-

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Bureau of Home Furnishings and Thermal Insulation

5210
(916) 574-
2041

www.dca.ca.gov/bhfti

CPUC California Public Utilities Commission

(415) 703-
2782

www.cpuc.ca.gov

TFS Texas Forest Service

(936) 639-
8180

Forest Products Laboratory
<http://txforestsERVICE.tamu.edu>

72 PART 2 - PRODUCTS (Not Used)

73 PART 3 - EXECUTION (Not Used)

74 END OF SECTION 01420

1 SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes requirements for temporary utilities, support facilities, and security and
8 protection facilities.

9 1.3 USE CHARGES

- 10 A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum.
11 Allow other entities to use temporary services and facilities without cost, including, but not
12 limited to, Architect testing agencies, and authorities having jurisdiction.

- 13 B. Water Service: Water from Owner's existing water system is available for use without metering
14 and without payment of use charges. Provide connections and extensions of services as
15 required for construction operations.

- 16 C. Electric Power Service: Electric power from Owner's existing system is available for use
17 without metering and without payment of use charges. Provide connections and extensions of
18 services as required for construction operations.

19 1.4 SUBMITTALS

- 20 A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for
21 construction personnel.

22 1.5 QUALITY ASSURANCE

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

25 1.6 PROJECT CONDITIONS

- 26 A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume
27 responsibility for operation, maintenance, and protection of each permanent service during its

28 use as a construction facility before Owner's acceptance, regardless of previously assigned
29 responsibilities.

30 PART 2 - PRODUCTS

31 2.1 MATERIALS

32 A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.76-mm-) thick, galvanized
33 steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts;
34 minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull
35 posts[, with 1-5/8-inch- (42-mm-) OD top rails.

36 B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 9-gage, galvanized steel, chain-link
37 fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-
38 inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-
39 inch- (42-mm-) OD top and bottom rails. Provide [concrete] bases for supporting posts.

40 C. Wood Enclosure Fence: Plywood, [6 feet (1.8 m)] [8 feet (2.4 m)] high, framed with four 2-by-
41 4-inch (50-by-100-mm) rails, with preservative-treated wood posts spaced not more than 8 feet
42 (2.4 m) apart.

43 D. Gypsum Board: Minimum 1/2 inch (12.7 mm) thick by 48 inches (1219 mm) wide by
44 maximum available lengths; regular-type panels with tapered edges. Comply with
45 ASTM C 36/C 36M.

46 2.2 EQUIPMENT

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

49 PART 3 - EXECUTION

50 3.1 INSTALLATION, GENERAL

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

54 B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities
55 are no longer needed or are replaced by authorized use of completed permanent facilities.

56 3.2 TEMPORARY UTILITY INSTALLATION

57 A. General: Install temporary service or connect to existing service.

- 58 1. Arrange with utility company, Owner, and existing users for time when service can be
59 interrupted, if necessary, to make connections for temporary services.
- 60 B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- 61 C. Water Service: Use of Owner's existing water service facilities will be permitted, as long as
62 facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial
63 Completion, restore these facilities to condition existing before initial use.
- 64 D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of
65 construction personnel. Comply with authorities having jurisdiction for type, number, location,
66 operation, and maintenance of fixtures and facilities.
- 67 1. Toilets: Use of Owner's existing toilet facilities will NOT be permitted.
- 68 E. Electric Power Service: Use of Owner's existing electric power service will be permitted, as
69 long as equipment is maintained in a condition acceptable to Owner.
- 70 F. Lighting: Provide temporary lighting with local switching that provides adequate illumination
71 for construction operations, observations, inspections, and traffic conditions.
- 72 1. Install and operate temporary lighting that fulfills security and protection requirements
73 without operating entire system.
74 2. Install lighting for Project identification sign.
- 75 3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION
- 76 A. Environmental Protection: Provide protection, operate temporary facilities, and conduct
77 construction in ways and by methods that comply with environmental regulations and that
78 minimize possible air, waterway, and subsoil contamination or pollution or other undesirable
79 effects.
- 80 B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line
81 of trees to protect vegetation from damage from construction operations. Protect tree root
82 systems from damage, flooding, and erosion.
- 83 C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and
84 harboring of rodents, roaches, and other pests and to perform extermination and control
85 procedures at regular intervals so Project will be free of pests and their residues at Substantial
86 Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using
87 environmentally safe materials.
- 88 D. Site Enclosure Fence: Before construction operations begin furnish and install site enclosure
89 fence in a manner that will prevent people and animals from easily entering site except by
90 entrance gates.
- 91 1. Extent of Fence: As required to enclose entire Project site or portion determined
92 sufficient to accommodate construction operations .

- 93 2. Maintain security by limiting number of keys and restricting distribution to authorized
94 personnel. Provide Owner with one set of keys.
- 95 E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having
96 jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- 97 F. Covered Walkway: Erect structurally adequate, protective, covered walkway for passage of
98 individuals along adjacent public street(s). Coordinate with entrance gates, other facilities, and
99 obstructions. Comply with regulations of authorities having jurisdiction and requirements
100 indicated on Drawings.
- 101 1. Construct covered walkways using scaffold or shoring framing.
102 2. Provide wood-plank overhead decking, protective plywood enclosure walls, handrails,
103 barricades, warning signs, lights, safe and well-drained walkways, and similar provisions
104 for protection and safe passage.
105 3. Extend back wall beyond the structure to complete enclosure fence.
106 4. Paint and maintain in a manner approved by Owner and Architect.
- 107 G. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt
108 migration and to separate areas occupied by **[Owner]** **[and]** **[tenants]** from fumes and noise.
- 109 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side,
110 and fire-retardant plywood on construction operations side.
- 111 H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types
112 needed to protect against reasonably predictable and controllable fire losses. Comply with
113 NFPA 241.
- 114 1. Prohibit smoking in construction areas.
115 2. Supervise welding operations, combustion-type temporary heating units, and similar
116 sources of fire ignition according to requirements of authorities having jurisdiction.
117 3. Develop and supervise an overall fire-prevention and -protection program for personnel
118 at Project site. Review needs with local fire department and establish procedures to be
119 followed. Instruct personnel in methods and procedures. Post warnings and information.
120 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning
121 sign stating that hoses are for fire-protection purposes only and are not to be removed.
122 Match hose size with outlet size and equip with suitable nozzles.
- 123 3.4 OPERATION, TERMINATION, AND REMOVAL
- 124 A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and
125 abuse, limit availability of temporary facilities to essential and intended uses.
- 126 B. Maintenance: Maintain facilities in good operating condition until removal.
- 127 C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- 128 D. Temporary Facility Changeover: Do not change over from using temporary security and
129 protection facilities to permanent facilities until Substantial Completion.

130 E. Termination and Removal: Remove each temporary facility when need for its service has
131 ended, when it has been replaced by authorized use of a permanent facility, or no later than
132 Substantial Completion. Complete or, if necessary, restore permanent construction that may
133 have been delayed because of interference with temporary facility. Repair damaged Work,
134 clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

135 1. Materials and facilities that constitute temporary facilities are property of Contractor.
136 Owner reserves right to take possession of Project identification signs.

137 2. Remove temporary paving not intended for or acceptable for integration into permanent
138 paving. Where area is intended for landscape development, remove soil and aggregate
139 fill that do not comply with requirements for fill or subsoil. Remove materials
140 contaminated with road oil, asphalt and other petrochemical compounds, and other
141 substances that might impair growth of plant materials or lawns. Repair or replace street
142 paving, curbs, and sidewalks at temporary entrances, as required by authorities having
143 jurisdiction.

144 3. At Substantial Completion, clean and renovate permanent facilities used during
145 construction period. Review final draft of this Section with Owner. Advise Owner that
146 any exceptions to its provisions might translate into costs borne by Owner.

147 END OF SECTION 015000

1 SECTION 017300 - EXECUTION

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes general procedural requirements governing execution of the Work
8 including, but not limited to, the following:

- 9 1. Construction layout.
10 2. Field engineering and surveying.
11 3. General installation of products.
12 4. Progress cleaning.
13 5. Starting and adjusting.
14 6. Protection of installed construction.
15 7. Correction of the Work.

- 16 B. Related Sections include the following:

- 17 1. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and
18 patching necessary for the installation or performance of other components of the Work.
19 2. Division 01 Section "Closeout Procedures" for submitting final property survey with
20 Project Record Documents, recording of Owner-accepted deviations from indicated lines
21 and levels, and final cleaning.

22 1.3 SUBMITTALS

- 23 A. Qualification Data: For land surveyor.

- 24 B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of
25 improvements comply with requirements.

26 1.4 QUALITY ASSURANCE

- 27 A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice
28 in jurisdiction where Project is located and who is experienced in providing land-surveying
29 services of the kind indicated.

30 PART 2 - PRODUCTS (Not Used)

31 PART 3 - EXECUTION

32 3.1 EXAMINATION

33 A. Existing Conditions: The existence and location of site improvements, utilities, and other
34 construction indicated as existing are not guaranteed. Before beginning work, investigate and
35 verify the existence and location of mechanical and electrical systems and other construction
36 affecting the Work.

37 1. Before construction, verify the location and points of connection of utility services.

38 B. Existing Utilities: The existence and location of underground and other utilities and
39 construction indicated as existing are not guaranteed. Before beginning sitework, investigate
40 and verify the existence and location of underground utilities and other construction affecting
41 the Work.

42 1. Before construction, verify the location and invert elevation at points of connection of
43 sanitary sewer, storm sewer, and water-service piping; and underground electrical
44 services.

45 2. Furnish location data for work related to Project that must be performed by public
46 utilities serving Project site.

47 C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or
48 Applicator present where indicated, for compliance with requirements for installation tolerances
49 and other conditions affecting performance. Record observations.

50 1. Written Report: Where a written report listing conditions detrimental to performance of
51 the Work is required by other Sections, include the following:

- 52 a. Description of the Work.
- 53 b. List of detrimental conditions, including substrates.
- 54 c. List of unacceptable installation tolerances.
- 55 d. Recommended corrections.

56 2. Verify compatibility with and suitability of substrates, including compatibility with
57 existing finishes or primers.

58 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of
59 connections before equipment and fixture installation.

60 4. Examine walls, floors, and roofs for suitable conditions where products and systems are
61 to be installed.

62 5. Proceed with installation only after unsatisfactory conditions have been corrected.
63 Proceeding with the Work indicates acceptance of surfaces and conditions.

64 3.2 PREPARATION

- 65 A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or
66 relocate existing utility structures, utility poles, lines, services, or other utility appurtenances
67 located in or affected by construction. Coordinate with authorities having jurisdiction.
- 68 B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck
69 measurements before installing each product. Where portions of the Work are indicated to fit to
70 other construction, verify dimensions of other construction by field measurements before
71 fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the
72 Work.
- 73 C. Space Requirements: Verify space requirements and dimensions of items shown
74 diagrammatically on Drawings.
- 75 D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for
76 clarification of the Contract Documents, submit a request for information to Architect. Include
77 a detailed description of problem encountered, together with recommendations for changing the
78 Contract Documents.

79 3.3 CONSTRUCTION LAYOUT

- 80 A. Verification: Before proceeding to lay out the Work, verify layout information shown on
81 Drawings, in relation to the property survey and existing benchmarks. If discrepancies are
82 discovered, notify Architect promptly.
- 83 B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
- 84 1. Establish benchmarks and control points to set lines and levels at each story of
85 construction and elsewhere as needed to locate each element of Project.
- 86 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain
87 required dimensions.
- 88 3. Inform installers of lines and levels to which they must comply.
- 89 4. Check the location, level and plumb, of every major element as the Work progresses.
- 90 5. Notify Architect when deviations from required lines and levels exceed allowable
91 tolerances.
- 92 6. Close site surveys with an error of closure equal to or less than the standard established
93 by authorities having jurisdiction.
- 94 C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill
95 and topsoil placement, utility slopes, and invert elevations.
- 96 D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building
97 foundations, column grids, and floor levels, including those required for mechanical and
98 electrical work. Transfer survey markings and elevations for use with control lines and levels.
99 Level foundations and piers from two or more locations.
- 100 E. Record Log: Maintain a log of layout control work. Record deviations from required lines and
101 levels. Include beginning and ending dates and times of surveys, weather conditions, name and

102 duty of each survey party member, and types of instruments and tapes used. Make the log
103 available for reference by Architect.

104 3.4 FIELD ENGINEERING

105 A. Identification: Owner will identify existing benchmarks, control points, and property corners.

106 B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference
107 points before beginning the Work. Preserve and protect permanent benchmarks and control
108 points during construction operations.

109 1. Do not change or relocate existing benchmarks or control points without prior written
110 approval of Architect. Report lost or destroyed permanent benchmarks or control points
111 promptly. Report the need to relocate permanent benchmarks or control points to
112 Architect before proceeding.

113 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base
114 replacements on the original survey control points.

115 C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site,
116 referenced to data established by survey control points. Comply with authorities having
117 jurisdiction for type and size of benchmark.

118 1. Record benchmark locations, with horizontal and vertical data, on Project Record
119 Documents.

120 2. Where the actual location or elevation of layout points cannot be marked, provide
121 temporary reference points sufficient to locate the Work.

122 3. Remove temporary reference points when no longer needed. Restore marked
123 construction to its original condition.

124 3.5 INSTALLATION

125 A. General: Locate the Work and components of the Work accurately, in correct alignment and
126 elevation, as indicated.

127 1. Make vertical work plumb and make horizontal work level.

128 2. Where space is limited, install components to maximize space available for maintenance
129 and ease of removal for replacement.

130 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

131 4. Maintain minimum headroom clearance of 8 feet (2.4 m) in spaces without a suspended
132 ceiling.

133 B. Comply with manufacturer's written instructions and recommendations for installing products in
134 applications indicated.

135 C. Install products at the time and under conditions that will ensure the best possible results.
136 Maintain conditions required for product performance until Substantial Completion.

- 137 D. Conduct construction operations so no part of the Work is subjected to damaging operations or
138 loading in excess of that expected during normal conditions of occupancy.
- 139 E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- 140 F. Templates: Obtain and distribute to the parties involved templates for work specified to be
141 factory prepared and field installed. Check Shop Drawings of other work to confirm that
142 adequate provisions are made for locating and installing products to comply with indicated
143 requirements.
- 144 G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component
145 securely in place, accurately located and aligned with other portions of the Work.
- 146 1. Mounting Heights: Where mounting heights are not indicated, mount components at
147 heights directed by Architect.
- 148 2. Allow for building movement, including thermal expansion and contraction.
- 149 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and
150 directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and
151 items with integral anchors, that are to be embedded in concrete or masonry. Deliver
152 such items to Project site in time for installation.
- 153 H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated,
154 arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- 155 I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered
156 hazardous.
- 157 3.6 PROGRESS CLEANING
- 158 A. General: Clean Project site and work areas daily, including common areas. Coordinate
159 progress cleaning for joint-use areas where more than one installer has worked. Enforce
160 requirements strictly. Dispose of materials lawfully.
- 161 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and
162 debris.
- 163 2. Do not hold materials more than 7 days during normal weather or 3 days if the
164 temperature is expected to rise above 80 deg F (27 deg C).
- 165 3. Containerize hazardous and unsanitary waste materials separately from other waste.
166 Mark containers appropriately and dispose of legally, according to regulations.
- 167 B. Site: Maintain Project site free of waste materials and debris.
- 168 C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for
169 proper execution of the Work.
- 170 1. Remove liquid spills promptly.
- 171 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the
172 entire work area, as appropriate.

- 173 D. Installed Work: Keep installed work clean. Clean installed surfaces according to written
174 instructions of manufacturer or fabricator of product installed, using only cleaning materials
175 specifically recommended. If specific cleaning materials are not recommended, use cleaning
176 materials that are not hazardous to health or property and that will not damage exposed surfaces.
- 177 E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- 178 F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure
179 freedom from damage and deterioration at time of Substantial Completion.
- 180 G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing
181 waste materials down sewers or into waterways will not be permitted.
- 182 H. During handling and installation, clean and protect construction in progress and adjoining
183 materials already in place. Apply protective covering where required to ensure protection from
184 damage or deterioration at Substantial Completion.
- 185 I. Clean and provide maintenance on completed construction as frequently as necessary through
186 the remainder of the construction period. Adjust and lubricate operable components to ensure
187 operability without damaging effects.
- 188 J. Limiting Exposures: Supervise construction operations to assure that no part of the
189 construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise
190 deleterious exposure during the construction period.
- 191 3.7 STARTING AND ADJUSTING
- 192 A. Start equipment and operating components to confirm proper operation. Remove
193 malfunctioning units, replace with new units, and retest.
- 194 B. Adjust operating components for proper operation without binding. Adjust equipment for
195 proper operation.
- 196 C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties.
197 Replace damaged and malfunctioning controls and equipment.
- 198 D. Manufacturer's Field Service: If a factory-authorized service representative is required to
199 inspect field-assembled components and equipment installation, comply with qualification
200 requirements in Division 01 Section "Quality Requirements."
- 201 3.8 PROTECTION OF INSTALLED CONSTRUCTION
- 202 A. Provide final protection and maintain conditions that ensure installed Work is without damage
203 or deterioration at time of Substantial Completion.
- 204 B. Comply with manufacturer's written instructions for temperature and relative humidity.

- 205 3.9 CORRECTION OF THE WORK
- 206 A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
207 Comply with requirements in Division 01 Section "Cutting and Patching."
- 208 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up
209 with matching materials, and properly adjusting operating equipment.
- 210 B. Restore permanent facilities used during construction to their specified condition.
- 211 C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired
212 without visible evidence of repair.
- 213 D. Repair components that do not operate properly. Remove and replace operating components
214 that cannot be repaired.
- 215 E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.
- 216 END OF SECTION 017300

1 SECTION 017329 - CUTTING AND PATCHING

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

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

- 8 B. Related Sections include the following:

- 9 1. Division 01 Section "Selective Structure Demolition" for demolition of selected portions
10 of the building.
11 2. Divisions 2 through 49 Sections for specific requirements and limitations applicable to
12 cutting and patching individual parts of the Work.

13 1.3 DEFINITIONS

- 14 A. Cutting: Removal of in-place construction necessary to permit installation or performance of
15 other Work.

- 16 B. Patching: Fitting and repair work required to restore surfaces to original conditions after
17 installation of other Work.

18 1.4 SUBMITTALS

- 19 A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before
20 the time cutting and patching will be performed, requesting approval to proceed. Include the
21 following information:

- 22 1. Extent: Describe cutting and patching, show how they will be performed, and indicate
23 why they cannot be avoided.
24 2. Changes to In-Place Construction: Describe anticipated results. Include changes to
25 structural elements and operating components as well as changes in building's appearance
26 and other significant visual elements.
27 3. Products: List products to be used and firms or entities that will perform the Work.
28 4. Dates: Indicate when cutting and patching will be performed.
29 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting
30 and patching procedures will disturb or affect. List services/systems that will be

- 31 relocated and those that will be temporarily out of service. Indicate how long
32 services/systems will be disrupted.
- 33 6. Structural Elements: Where cutting and patching involve adding reinforcement to
34 structural elements, submit details and engineering calculations showing integration of
35 reinforcement with original structure.
- 36 7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting
37 and patching. Approval does not waive right to later require removal and replacement of
38 unsatisfactory work.

39 1.5 QUALITY ASSURANCE

- 40 A. Structural Elements: Do not cut and patch structural elements in a manner that could change
41 their load-carrying capacity or load-deflection ratio.
- 42 B. Operational Elements: Do not cut and patch operating elements and related components in a
43 manner that results in reducing their capacity to perform as intended or that results in increased
44 maintenance or decreased operational life or safety. Operating elements include the following:
- 45 1. Primary operational systems and equipment.
46 2. Air or smoke barriers.
47 3. Fire-suppression systems.
48 4. Mechanical systems piping and ducts.
49 5. Control systems.
50 6. Communication systems.
51 7. Conveying systems.
52 8. Electrical wiring systems.
53 9. Operating systems of special construction in Division 13 Sections.
- 54 C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components
55 in a manner that could change their load-carrying capacity, that results in reducing their
56 capacity to perform as intended, or that results in increased maintenance or decreased
57 operational life or safety.
- 58 1. Water, moisture, or vapor barriers.
59 2. Membranes and flashings.
60 3. Exterior curtain-wall construction.
61 4. Equipment supports.
62 5. Piping, ductwork, vessels, and equipment.
63 6. Noise- and vibration-control elements and systems.
- 64 D. Visual Requirements: Do not cut and patch construction in a manner that results in visual
65 evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or
66 in occupied spaces in a manner that would, in Architect's opinion, reduce the building's
67 aesthetic qualities. Remove and replace construction that has been cut and patched in a visually
68 unsatisfactory manner.

69 1.6 WARRANTY

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

73 PART 2 - PRODUCTS

74 2.1 MATERIALS

75 A. General: Comply with requirements specified in other Sections.

76 B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use
77 materials that visually match in-place adjacent surfaces to the fullest extent possible.

78 1. If identical materials are unavailable or cannot be used, use materials that, when installed,
79 will match the visual and functional performance of in-place materials.

80 PART 3 - EXECUTION

81 3.1 EXAMINATION

82 A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to
83 be performed.

84 1. Compatibility: Before patching, verify compatibility with and suitability of substrates,
85 including compatibility with in-place finishes or primers.

86 2. Proceed with installation only after unsafe or unsatisfactory conditions have been
87 corrected.

88 3.2 PREPARATION

89 A. Temporary Support: Provide temporary support of Work to be cut.

90 B. Protection: Protect in-place construction during cutting and patching to prevent damage.
91 Provide protection from adverse weather conditions for portions of Project that might be
92 exposed during cutting and patching operations.

93 C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage
94 to adjoining areas.

95 D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems
96 are required to be removed, relocated, or abandoned, bypass such services/systems before
97 cutting to minimize interruption to occupied areas.

- 98 3.3 PERFORMANCE
- 99 A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and
100 patching at the earliest feasible time, and complete without delay.
- 101 1. Cut in-place construction to provide for installation of other components or performance
102 of other construction, and subsequently patch as required to restore surfaces to their
103 original condition.
- 104 B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar
105 operations, including excavation, using methods least likely to damage elements retained or
106 adjoining construction. If possible, review proposed procedures with original Installer; comply
107 with original Installer's written recommendations.
- 108 1. In general, use hand or small power tools designed for sawing and grinding, not
109 hammering and chopping. Cut holes and slots as small as possible, neatly to size
110 required, and with minimum disturbance of adjacent surfaces. Temporarily cover
111 openings when not in use.
- 112 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
- 113 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
- 114 4. Excavating and Backfilling: Comply with requirements in applicable Division 31
115 Sections where required by cutting and patching operations.
- 116 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be
117 removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent
118 entrance of moisture or other foreign matter after cutting.
- 119 6. Proceed with patching after construction operations requiring cutting are complete.
- 120 C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations
121 following performance of other Work. Patch with durable seams that are as invisible as
122 possible. Provide materials and comply with installation requirements specified in other
123 Sections.
- 124 1. Inspection: Where feasible, test and inspect patched areas after completion to
125 demonstrate integrity of installation.
- 126 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish
127 restoration into retained adjoining construction in a manner that will eliminate evidence
128 of patching and refinishing.
- 129 a. Clean piping, conduit, and similar features before applying paint or other finishing
130 materials.
- 131 b. Restore damaged pipe covering to its original condition.
- 132 3. Floors and Walls: Where walls or partitions that are removed extend one finished area
133 into another, patch and repair floor and wall surfaces in the new space. Provide an even
134 surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall
135 coverings and replace with new materials, if necessary, to achieve uniform color and
136 appearance.
- 137 a. Where patching occurs in a painted surface, apply primer and intermediate paint
138 coats over the patch and apply final paint coat over entire unbroken surface

139 containing the patch. Provide additional coats until patch blends with adjacent
140 surfaces.

141 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane
142 surface of uniform appearance.

143 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a
144 weathertight condition.

145 D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely
146 remove paint, mortar, oils, putty, and similar materials.

147 END OF SECTION 017329

1 SECTION 017700 - CLOSEOUT PROCEDURES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

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

- 9 1. Inspection procedures.
10 2. Warranties.
11 3. Final cleaning.

- 12 B. Related Sections include the following:

- 13 1. Division 01 Section "Payment Procedures" for requirements for Applications for
14 Payment for Substantial and Final Completion.

15 1.3 SUBSTANTIAL COMPLETION

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

- 18 1. Prepare a list of items to be completed and corrected (punch list), the value of items on
19 the list, and reasons why the Work is not complete.
20 2. Advise Owner of pending insurance changeover requirements.
21 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final
22 certifications, and similar documents.
23 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to
24 services and utilities. Include occupancy permits, operating certificates, and similar
25 releases.
26 5. Prepare and submit Project Record Documents, operation and maintenance manuals,
27 Final Completion construction photographs, damage or settlement surveys, property
28 surveys, and similar final record information.
29 6. Deliver tools, spare parts, extra materials, and similar items to location designated by
30 Owner. Label with manufacturer's name and model number where applicable.
31 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's
32 personnel of changeover in security provisions.
33 8. Complete startup testing of systems.
34 9. Submit test/adjust/balance records.

- 35 10. Terminate and remove temporary facilities from Project site, along with mockups,
36 construction tools, and similar elements.
37 11. Advise Owner of changeover in heat and other utilities.
38 12. Submit changeover information related to Owner's occupancy, use, operation, and
39 maintenance.
40 13. Complete final cleaning requirements, including touchup painting.
41 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual
42 defects.

43 B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of
44 request, Architect will either proceed with inspection or notify Contractor of unfulfilled
45 requirements. Architect will prepare the Certificate of Substantial Completion after inspection
46 or will notify Contractor of items, either on Contractor's list or additional items identified by
47 Architect, that must be completed or corrected before certificate will be issued.

- 48 1. Reinspection: Request reinspection when the Work identified in previous inspections as
49 incomplete is completed or corrected.
50 2. Results of completed inspection will form the basis of requirements for Final
51 Completion.

52 1.4 FINAL COMPLETION

53 A. Preliminary Procedures: Before requesting final inspection for determining date of Final
54 Completion, complete the following:

- 55 1. Submit a final Application for Payment according to Division 01 Section "Payment
56 Procedures."
57 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be
58 completed or corrected, endorsed and dated by Architect. The certified copy of the list
59 shall state that each item has been completed or otherwise resolved for acceptance.
60 3. Submit evidence of final, continuing insurance coverage complying with insurance
61 requirements.
62 4. Submit pest-control final inspection report and warranty.
63 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products,
64 equipment, and systems. Submit demonstration and training videotapes.

65 B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request,
66 Architect will either proceed with inspection or notify Contractor of unfulfilled requirements.
67 Architect will prepare a final Certificate for Payment after inspection or will notify Contractor
68 of construction that must be completed or corrected before certificate will be issued.

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

71 1.5 LIST OF INCOMPLETE ITEMS

72 A. Preparation: Submit three copies of list. Include name and identification of each space and area
73 affected by construction operations for incomplete items and items needing correction
74 including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

75 1. Organize list of spaces in sequential order, starting with exterior areas first and
76 proceeding from lowest floor to highest floor.

77 2. Organize items applying to each space by major element, including categories for ceiling,
78 individual walls, floors, equipment, and building systems.

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

80 a. Project name.

81 b. Date.

82 c. Name of Architect

83 d. Name of Contractor.

84 e. Page number.

85 1.6 WARRANTIES

86 A. Submittal Time: Submit written warranties on request of Architect for designated portions of
87 the Work where commencement of warranties other than date of Substantial Completion is
88 indicated.

89 B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of
90 designated portions of the Work that are completed and occupied or used by Owner during
91 construction period by separate agreement with Contractor.

92 C. Organize warranty documents into an orderly sequence based on the table of contents of the
93 Project Manual.

94 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders,
95 thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch
96 (215-by-280-mm) paper.

97 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark
98 tab to identify the product or installation. Provide a typed description of the product or
99 installation, including the name of the product and the name, address, and telephone
100 number of Installer.

101 3. Identify each binder on the front and spine with the typed or printed title
102 "WARRANTIES," Project name, and name of Contractor.

103 D. Provide additional copies of each warranty to include in operation and maintenance manuals.

104 PART 2 - PRODUCTS

105 2.1 MATERIALS

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

109 PART 3 - EXECUTION

110 3.1 FINAL CLEANING

- 111 A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply
112 with local laws and ordinances and Federal and local environmental and antipollution
113 regulations.

- 114 B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each
115 surface or unit to condition expected in an average commercial building cleaning and
116 maintenance program. Comply with manufacturer's written instructions.

- 117 1. Complete the following cleaning operations before requesting inspection for certification
118 of Substantial Completion for entire Project or for a portion of Project:

- 119 a. Clean Project site, yard, and grounds, in areas disturbed by construction activities,
120 including landscape development areas, of rubbish, waste material, litter, and other
121 foreign substances.

- 122 b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other
123 foreign deposits.

- 124 c. Rake grounds that are neither planted nor paved to a smooth, even-textured
125 surface.

- 126 d. Remove tools, construction equipment, machinery, and surplus material from
127 Project site.

- 128 e. Remove snow and ice to provide safe access to building.

- 129 f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition,
130 free of stains, films, and similar foreign substances. Avoid disturbing natural
131 weathering of exterior surfaces. Restore reflective surfaces to their original
132 condition.

- 133 g. Remove debris and surface dust from limited access spaces, including roofs,
134 plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

- 135 h. Sweep concrete floors broom clean in unoccupied spaces.

- 136 i. Vacuum carpet and similar soft surfaces, removing debris and excess nap;
137 shampoo if visible soil or stains remain.

- 138 j. Clean transparent materials, including mirrors and glass in doors and windows.
139 Remove glazing compounds and other noticeable, vision-obscuring materials.
140 Replace chipped or broken glass and other damaged transparent materials. Polish
141 mirrors and glass, taking care not to scratch surfaces.

- 142 k. Remove labels that are not permanent.

- 143 l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces.
144 Replace finishes and surfaces that cannot be satisfactorily repaired or restored or
145 that already show evidence of repair or restoration.
- 146 1) Do not paint over "UL" and similar labels, including mechanical and
147 electrical nameplates.
- 148 m. Wipe surfaces of mechanical and electrical equipment[, **elevator equipment,**] and
149 similar equipment. Remove excess lubrication, paint and mortar droppings, and
150 other foreign substances.
- 151 n. Replace parts subject to unusual operating conditions.
- 152 o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains
153 resulting from water exposure.
- 154 p. Replace disposable air filters and clean permanent air filters. Clean exposed
155 surfaces of diffusers, registers, and grills.
- 156 q. Clean ducts, blowers, and coils if units were operated without filters during
157 construction.
- 158 r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
159 Replace burned-out bulbs, and those noticeably dimmed by hours of use, and
160 defective and noisy starters in fluorescent and mercury vapor fixtures to comply
161 with requirements for new fixtures.
- 162 s. Leave Project clean and ready for occupancy.
- 163 C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid
164 Project of rodents, insects, and other pests. Prepare a report.
- 165 D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or
166 excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous
167 materials into drainage systems. Remove waste materials from Project site and dispose of
168 lawfully.
- 169 END OF SECTION 017700

1 SECTION 017839 - PROJECT RECORD DOCUMENTS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes administrative and procedural requirements for Project Record
8 Documents, including the following:

- 9 1. Record Drawings.
10 2. Record Specifications.
11 3. Record Product Data.

- 12 B. Related Sections include the following:

- 13 1. Division 01 Section "Closeout Procedures" for general closeout procedures.
14 2. Divisions 02 through 49 Sections for specific requirements for Project Record
15 Documents of the Work in those Sections.

16 1.3 SUBMITTALS

- 17 A. Record Drawings: Comply with the following:

- 18 1. Number of Copies: Submit copies of Record Drawings as follows:

- 19 a. Initial Submittal: Submit one set(s) of plots from corrected Record CAD
20 Drawings and one set(s) of marked-up Record Prints. Architect will initial and
21 date each plot and mark whether general scope of changes, additional information
22 recorded, and quality of drafting are acceptable. Architect will return plots and
23 prints for organizing into sets, printing, binding, and final submittal.

- 24 b. Final Submittal: Submit one set(s) of marked-up Record Prints, one set(s) of
25 Record CAD Drawing files, one set(s) of Record CAD Drawing plots, and three
26 copies printed from record plots. Plot and print each Drawing, whether or not
27 changes and additional information were recorded.

- 28 1) Electronic Media: CD-R.

- 29 2) DWG Format compatible with AutoCad version 2004 or later and not in
30 "read only" or "write protected format".

- 31 B. Record Specifications: Submit one copy of Project's Specifications, including addenda and
32 contract modifications.

- 33 C. Record Product Data: Submit one copy of each Product Data submittal.
- 34 1. Where Record Product Data is required as part of operation and maintenance manuals,
35 submit marked-up Product Data as an insert in manual instead of submittal as Record
36 Product Data.

37 PART 2 - PRODUCTS

38 2.1 RECORD DRAWINGS

- 39 A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings
40 and Shop Drawings.

- 41 1. Preparation: Mark Record Prints to show the actual installation where installation varies
42 from that shown originally. Require individual or entity who obtained record data,
43 whether individual or entity is Installer, subcontractor, or similar entity, to prepare the
44 marked-up Record Prints.

- 45 a. Give particular attention to information on concealed elements that would be
46 difficult to identify or measure and record later.
- 47 b. Accurately record information in an understandable drawing technique.
- 48 c. Record data as soon as possible after obtaining it. Record and check the markup
49 before enclosing concealed installations.

- 50 2. Content: Types of items requiring marking include, but are not limited to, the following:

- 51 a. Dimensional changes to Drawings.
- 52 b. Revisions to details shown on Drawings.
- 53 c. Depths of foundations below first floor.
- 54 d. Locations and depths of underground utilities.
- 55 e. Revisions to routing of piping and conduits.
- 56 f. Revisions to electrical circuitry.
- 57 g. Actual equipment locations.
- 58 h. Duct size and routing.
- 59 i. Locations of concealed internal utilities.
- 60 j. Changes made by Change Order or Construction Change Directive.
- 61 k. Changes made following Architect's written orders.
- 62 l. Details not on the original Contract Drawings.
- 63 m. Field records for variable and concealed conditions.
- 64 n. Record information on the Work that is shown only schematically.

- 65 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing
66 actual physical conditions, completely and accurately. If Shop Drawings are marked,
67 show cross-reference on the Contract Drawings.

- 68 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish
69 between changes for different categories of the Work at same location.

- 70 5. Mark important additional information that was either shown schematically or omitted
71 from original Drawings.

- 72 6. Note Construction Change Directive numbers, alternate numbers, Change Order
73 numbers, and similar identification, where applicable.
- 74 B. Record CAD Drawings: Immediately before inspection for Certificate of Substantial
75 Completion, review marked-up Record Prints with Architect. When authorized, prepare a full
76 set of corrected CAD Drawings of the Contract Drawings, as follows:
- 77 1. Format DWG, Version AutoCad 2004 or later operating in Microsoft Windows operating
78 system.
- 79 2. Incorporate changes and additional information previously marked on Record Prints.
80 Delete, redraw, and add details and notations where applicable.
- 81 3. Refer instances of uncertainty to Architect for resolution.
- 82 4. Architect will furnish Contractor one set of CAD Drawings of the Contract Drawings for
83 use in recording information.
- 84 a. Architect makes no representations as to the accuracy or completeness of CAD
85 Drawings as they relate to the Contract Drawings.
- 86 b. CAD Software Program: The Contract Drawings are available in AutoCad LT
87 2006.
- 88 C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record
89 Drawings where Architect determines that neither the original Contract Drawings nor Shop
90 Drawings are suitable to show actual installation.
- 91 1. New Drawings may be required when a Change Order is issued as a result of accepting
92 an alternate, substitution, or other modification.
- 93 2. Consult Architect for proper scale and scope of detailing and notations required to record
94 the actual physical installation and its relation to other construction. Integrate newly
95 prepared Record Drawings into Record Drawing sets; comply with procedures for
96 formatting, organizing, copying, binding, and submitting.
- 97 D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD
98 DRAWING" in a prominent location.
- 99 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into
100 manageable sets. Bind each set with durable paper cover sheets. Include identification
101 on cover sheets.
- 102 2. Record CAD Drawings: Organize CAD information into separate electronic files that
103 correspond to each sheet of the Contract Drawings. Name each file with the sheet
104 identification. Include identification in each CAD file.
- 105 3. Identification: As follows:
- 106 a. Project name.
- 107 b. Date.
- 108 c. Designation "PROJECT RECORD DRAWINGS."
- 109 d. Name of Architect.
- 110 e. Name of Contractor.

111 2.2 RECORD SPECIFICATIONS

112 A. Preparation: Mark Specifications to indicate the actual product installation where installation
113 varies from that indicated in Specifications, addenda, and contract modifications.

114 1. Give particular attention to information on concealed products and installations that
115 cannot be readily identified and recorded later.

116 2. Mark copy with the proprietary name and model number of products, materials, and
117 equipment furnished, including substitutions and product options selected.

118 3. Record the name of manufacturer, supplier, Installer, and other information necessary to
119 provide a record of selections made.

120 4. For each principal product, indicate whether Record Product Data has been submitted in
121 operation and maintenance manuals instead of submitted as Record Product Data.

122 5. Note related Change Orders, Record Product Data, and Record Drawings where
123 applicable.

124 2.3 RECORD PRODUCT DATA

125 A. Preparation: Mark Product Data to indicate the actual product installation where installation
126 varies substantially from that indicated in Product Data submittal.

127 1. Give particular attention to information on concealed products and installations that
128 cannot be readily identified and recorded later.

129 2. Include significant changes in the product delivered to Project site and changes in
130 manufacturer's written instructions for installation.

131 3. Note related Change Orders, Record Specifications, and Record Drawings where
132 applicable.

133 2.4 MISCELLANEOUS RECORD SUBMITTALS

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

137 PART 3 - EXECUTION

138 3.1 RECORDING AND MAINTENANCE

139 A. Recording: Maintain one copy of each submittal during the construction period for Project
140 Record Document purposes. Post changes and modifications to Project Record Documents as
141 they occur; do not wait until the end of Project.

142 B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the
143 field office apart from the Contract Documents used for construction. Do not use Project
144 Record Documents for construction purposes. Maintain Record Documents in good order and

145 in a clean, dry, legible condition, protected from deterioration and loss. Provide access to
146 Project Record Documents for Architect's reference during normal working hours.

147 END OF SECTION 017839

SECTION 02080

ASBESTOS ABATEMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Documents affecting work of this Section include, but are not necessarily limited to, abatement design drawings AB1 thru AB2 and the Asbestos Investigation report prepared by F&ME Consultants, dated February 10, 2012, located in the appendix of these specifications.

1.2 ASBESTOS ABATEMENT CONTRACTOR QUALIFICATIONS - SPECIAL STANDARDS OF RESPONSIBILITY:

- A. Asbestos Abatement Contractor's Qualifications:
 - 1. A qualified firm that has not less than five (5) years experience in the removal and proper disposal of asbestos-containing materials (ACM).

1.3 SCOPE OF WORK – SUMMARY

- A. The scope of work for the asbestos abatement generally includes the removal and proper disposal of asbestos-containing materials (ACM) within the limits of the abatement area as indicated on the provided drawings and referenced in these specifications. The abatement work will be coordinated so as to accommodate building occupants' access to stairwells and elevators, and will include removal of ACM spray-applied textured ceiling surfacing material from interior and non-ACM stucco on exterior ceilings of the perimeter breezeway; black mastic on fiberglass HVAC duct insulation; red caulking on seams of metal HVAC ductwork; thermal system insulation (TSI) mudded pipe elbows and joints; exterior window glazing/caulking; and transite insulating panels at the base of glass storefront walls. Abatement Contractor (Contractor) will be required to coordinate with the General Contractor (GC) regarding all abatement activities associated with the project included herein. Contractor and GC shall coordinate general demolition activities that will not impact ACM within the building with those that will either require or potentially impact ACM.
- B. Prior to commencement of abatement activities, Contractor shall submit required documents as outlined in Section 1.16 herein.
- C. Contractor shall remove ACM utilizing work practices outlined by the USEPA's and the SCDHEC's regulations.
- D. The Contractor shall refer to abatement plans AB1 and AB2 for locations and limits of abatement activities.
- E. The Contractor shall take into account emergency ingress and egress when completing his or her abatement work plan. All stairwells, the elevators and elevator lobby area will be maintained accessible during the entire abatement operation. Contractor shall coordinate and assist, as required, with construction of an access tunnel and temporary barrier wall to the east stairwell for building occupants to enter and exit the building. Contractor shall refer to demolition drawings D1 thru D5 for sequencing and construction requirements for tunnel and temporary barrier wall.
- F. Contractor shall coordinate removal of existing facilities within the abatement area. Contractor shall ensure that only the existing data, smoke/fire alarm systems, telephone, electrical and fire suppression lines that are to be removed during abatement activities are removed. Contractor shall maintain intact and protect all facilities that are to remain after abatement operations are complete. Costs for repairs associated with damage incurred during abatement, demolition and put-back operations to those facilities to remain will be at the GC's expense.

- G. In the event of a fiber release (airborne or amended water), Contractor will follow procedures as outlined in Section 3.2, part A of these specifications.
- H. Quantities referred to in the ACM report prepared by F&ME (see appendix) are for informational purposes only and not for bidding estimates. The Contractor shall be responsible for verification of all site conditions and quantities associated with the abatement prior to the bid.
- I. Asbestos-containing materials (ACM) to be removed and/or impacted during the abatement operations shall include the following:
 - a. Spray applied textured ceiling surfacing material and associated overspray. (Est. 800 SF)
 - b. Drywall and associated joint compound. (Est. 1500 SF)
 - c. Black mastic on seams of fiberglass HVAC duct wrap insulation. (Est. 500 SF)
 - d. Red HVAC caulking (if encountered)
 - e. Exterior window glazing/ caulking at base of glass storefront walls (Est. 250 LF)
 - f. Transite panels at base of storefront walls within the interior of the building (Est. 25 SF)
 - g. Black pipe mastic and associated fiberglass insulation. (Est. 250 LF)
 - h. Thermal systems insulation (TSI) mudded elbows on mechanical system piping (Est. 50 Each)

J. ABATEMENT ACTIVITIES

The following is a summary of the scope of abatement activities required during the abatement operations to be performed. More detailed information regarding materials, execution, etc. are provided in other sections herein and abatement plan AB1.

- 2. Spray applied textured ceiling surfacing material and associated plaster ceilings – The spray applied textured ceiling materials found within the interior of the building are ACM. Contractor shall remove all ceilings within the interior spaces along with the associated plaster ceilings. All components of the plaster ceiling (i.e. metal lathe, hangers, supply and return grills and lighting fixtures) shall be removed along with the textured surfacing material while under containment and disposed of as ACM.
- 3. Drywall and associated joint compound – Walls within the interior spaces of the building are drywall. The joint compound associated with the drywall is ACM. All drywall, associated joint compound and components of the wall system (i.e. metal studs etc.) found within the limits of the abatement are to be removed and disposed of as ACM.
- 4. Black mastic on seams of fiberglass wrap insulation on HVAC ductwork - Metal ductwork associated with the original HVAC system was insulated with non-asbestos fiberglass duct wrap insulation. The seams were sealed with asbestos-containing black mastic. Contractor shall remove all metal and flex ductwork, HVAC duct wrap insulation and associated mastic within the limits of the abatement, above hard ceilings, and dispose of as ACM.
- 5. Transite Insulating Panels – The exterior glass storefront walls are insulated at the base of the walls with an insulating panel. At the radiant heaters the interior sides of these panels are constructed with a cement asbestos board (Transite). These panels are also sealed at the top and bottom with a hard caulking that is an ACM. A gasket is noted on original plans at the base of the storefront wall that was inaccessible during the ACM investigation. Contractor is to coordinate with the GC demolition of the glass storefront walls in order to remove the transite panels, exterior caulking and gasket material and dispose of them as ACM.

6. TSI, Black Mastic on Joints of Pipe Insulation – Original mechanical lines found throughout the building are insulated with rigid fiberglass. Seams at elbows and joints are sealed and coated with asbestos-containing black mastic. Contractor shall remove all black mastic and associated fiberglass pipe insulation found on mechanical and plumbing lines above hard ceilings within the limits of the abatement, and dispose of as ACM.
 7. TSI, Mudded Elbows Mechanical Piping – Original mechanical lines found within the building are insulated with rigid fiberglass pipe insulation on the main pipe runs throughout the building. Elbows and joints are mudded with asbestos-containing pipe insulation. Contractor shall remove all mudded elbows and joints found on mechanical and plumbing lines within the limits of the abatement on the ground floor level above hard ceilings and mudded elbows as delineated on the basement level drawing AB2, and dispose of them as ACM.
- K. All materials and procedures described herein shall be implemented by the Contractor unless specifically noted otherwise.

1.4 CONTRACTOR'S DUTIES – SUMMARY

- A. The Contractor is to provide and pay for the following, except as specifically noted:
1. Labor, material, tools, required equipment (i.e. scaffolding, *etc.*) and machinery.
 1. Other facilities and services necessary for proper execution and completion of Work.
 2. Pay legally required sales, consumer and use taxes.
- B. Contractor will absorb costs for the following:
1. Permits
 2. Government fees
 3. Licenses
- D. Contractor shall provide notifications to appropriate entities based on applicable regulations.
- E. Contractor shall comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of Work.
- G. Contractor shall enforce strict discipline and good order among employees. Do not employ on Work, on Project or Work Site:
1. Unfit persons.
 2. Persons not skilled in assigned task.

1.5 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS

Pub #4545 (1994) OSHA Analytical Methods Manual

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z9.2 (1979; R 1991) Fundamentals Governing the Design and Operation of Local Exhaust Systems

ANSI Z87.1	(1989; Errata; Z87.1a) Occupational and Educational Eye and Face Protection
ANSI Z88.2	(1992) Respiratory Protection
AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)	
ASTM E 1368	(1990) Visual Inspection of Asbestos Abatement Projects
CODE OF FEDERAL REGULATIONS (CFR)	
CFR 29 Part 1910	Occupational Safety and Health Standards
CFR 29 Part 1926	Safety and Health Regulations for Construction
CFR 40 Part 61	National Emission Standards for Hazardous Air Pollutants
CFR 40 Part 763	Asbestos
ENVIRONMENTAL PROTECTION AGENCY (EPA)	
EPA 340/1-90-018	(1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance
EPA 340/1-90-019	(1990) Asbestos/NESHAP Adequately Wet Guidance
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)	
NIOSH Pub No. 84-100	(1984; Supple 1985, 1987, 1988 & 1990)
NIOSH	Manual of Analytical Methods
UNDERWRITERS LABORATORIES (UL)	
UL 586	(1990) High-Efficiency, Particulate, Air Filter Units

1.6 DEFINITIONS

A. Adequately Wet

1. A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-019 that means to sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wetted.

B. Aggressive Method

1. Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact ACM.

C. Amended Water

1. Water containing a wetting agent or surfactant with a surface tension of at least 29 dynes per square centimeter when tested in accordance with ASTM D 1331.

D. Asbestos

1. Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

E. Asbestos-Containing Construction Material (OSHA)

1. Any manufactured construction material that contains more than one tenth of one percent asbestos by weight.

F. Asbestos-Containing Material (ACM)

1. Any material containing more than one percent asbestos

G. Asbestos Regulated Work Area

1. An asbestos regulated work area is an area established by the Contractor to demarcate areas where Class I, II and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

H. Authorized Person

1. Any person certified and authorized by the Contractor, Owners Representative and/or Owner and required by work duties to be present in regulated areas.

I. Category I Non-friable ACM

1. A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy.

J. Category II Non-friable ACM

1. A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material, excluding Category I Non-friable ACM, containing more than 1 percent asbestos as determined using the methods specified in Appendix A, Subpart F, CFR 40 Part 763, Section 1, Polarized Light Microscopy, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

K. Class I Asbestos Work

1. Activities that involve the removal of thermal system insulation (TSI) and surfacing ACM.

L. Class II Asbestos Work

1. Abatement activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.

M. Competent Person

1. In addition to the definition in CFR 29 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them.

N. Critical Barrier

1. One or more layers of 6-mil plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

O. Disturbance

1. Contact, which releases fibers from ACM or debris containing ACM. This term includes activities that disrupt the matrix of ACM, render ACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM no greater than the amount that can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

P. Friable ACM

1. A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Q. Glove Bag

1. A term as defined by CFR 29 Part 1926.1101 that means a sealed compartment with attached inner gloves used for the handling of asbestos containing materials.

R. Intact

1. ACM which has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.

S. Negative Initial Exposure Assessment

1. A demonstration by the Contractor that employee exposure during an operation is expected to be consistently below the PELs (TWA and Excursion Limit).

T. Non-friable ACM

1. A term as defined in CFR 40 Part 61, Subpart M and EPA 340/1-90-018 that means any material containing more than 1 percent asbestos as determined using the method specified in CFR 40 Part 763, Appendix A, Subpart F, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

U. Time-Weighted Average (TWA)

1. The TWA is an 8-hour time weighted average of airborne concentration of fibers (longer than 5 micrometers) per cubic centimeter of air which represents the employee's 8-hour workday as determined by Appendix A of CFR 29 Part 1926, Section 1926.58.

1.7 DESCRIPTION OF WORK

- A. The work covered by this section includes the requirements for the removal, transportation, disposal, storage, containment of, and housekeeping activities involving asbestos containing materials and asbestos contaminated materials located within the Humanities Building. CFR 40 Part 763 governs this abatement work.

1.8 SECURITY

- A. Security shall be provided for each asbestos regulated work area. A logbook shall be kept documenting entry into and out of the asbestos regulated work area. Entry into asbestos regulated work areas shall only be by personnel authorized by the Abatement Contractor, Owners Representative and Owner. Personnel authorized to enter asbestos regulated work areas shall be trained, medically evaluated and wear the personal protective equipment, as required by this specification, for the specific asbestos regulated work area to be entered.

1.9 MEDICAL REQUIREMENTS

- A. Medical requirements shall conform to CFR 29 Part 1926, Section 1926.58.
 1. Medical Examinations

- a. The Contractor shall provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an 8 hour time weighted average. In the absence of specific airborne fiber data provide medical examination for all workers who will enter the work area for any reason. Examination shall as a minimum meet OSHA requirements as set forth in 29 CFR 1926.1101(m) and, in addition, provide an evaluation of the individuals' ability to work in environments capable of producing heat stress in the worker.

2. Medical and Exposure Records

- a. The Contractor shall maintain complete and accurate records of employees' medical examinations for a period of 30 years after termination of employment as required by 29 CFR 1926.1101(n) and make records of the required medical examinations available for inspection and copying to: The Assistant Secretary for Occupational Safety and Health, The Director of The National Institute for Occupational Safety and Health (NIOSH), authorized representatives of either of them, and an employee's physician upon the request of the employee or former employee.

1.10 TRAINING

- A. All Contractor personnel involved with asbestos work must be trained and tested prior to any work, and shall be thoroughly familiar with the Contractor's standard operating procedure for the abatement work. All personnel shall undergo the specific medical examinations required by OSHA. The superintendent and the foreman shall be thoroughly familiar with all applicable regulations and practices for asbestos work and shall have participated in at least two abatement projects of similar size and scope within the past two years. All personnel shall be in possession of valid respirator fit test Paperwork.

1.11 RESPIRATORY PROTECTION PROGRAM

- A. The Contractor shall establish in writing, and implement a respiratory protection program in accordance with CFR 29 Part 1926, Section 1926.58, CFR 29 Part 1910, Section 1910.134, ANSI Z88.2, CGA G-7 and CGA G-7.1. The Contractor shall establish minimum respiratory protection requirements based on measured or anticipated levels of airborne asbestos fiber concentrations encountered during the performance of the asbestos abatement work. The Contractor's respiratory protection program shall include, but not be limited to, the following elements:
 1. The company policy, used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.
 2. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.
 3. Medical evaluation of each user to verify that the worker may be assigned to an activity where respiratory protection is required.
 4. Training in the proper use and limitations of respirators.
 5. Respirator fit testing (i.e., quantitative, qualitative and individual functional fit checks).
 6. Regular cleaning and disinfection of respirators.
 7. Routine inspection of respirators during cleaning and after each use when designated for emergency use.
 8. Storage of respirators in convenient, clean, and sanitary locations.

9. Surveillance of work area conditions and degree of employee exposure (e.g., through air monitoring).
10. Regular evaluation of the continued effectiveness of the respiratory protection program.
11. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with valve function; prescription eyewear usage; prohibition of wearing contact lenses; etc.).
12. Proper training in putting on and removing respirators.

1.12 HAZARD COMMUNICATION PROGRAM

- A. A hazard communication program shall be established and implemented in accordance with CFR 29 Part 1926, Section 1926.59.

1.13 SAFETY AND HEALTH COMPLIANCE

- A. In addition to detailed requirements of this specification, the work shall comply with applicable laws, ordinances, criteria, rules, and regulations of Federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials and with the applicable requirements of CFR 29 Part 1910, CFR 29 Part 1926, CFR 40 Part 61, Subpart A, and CFR 40 Part 61, Subpart M, NFPA 10, NFPA 70, NFPA 90A, NFPA 101. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the Owner shall apply.

1.14 COMPETENT PERSON

- A. When the contractor has employees engaged in Class I or II asbestos work, he shall have a Competent Person performing or supervising the following duties, as applicable:
 1. Set up the regulated area, enclosure, or other containment;
 2. Ensure (by on-site inspection) the integrity of the enclosure or containment;
 3. Set up procedures to control entry to and exit from the enclosure and/or area;
 4. Supervise all employee exposure monitoring and ensure that it is conducted as required;
 5. Ensure that employees working within the enclosure and/or using glove bags wear protective clothing and respirators as required.
 6. Ensure through on-site supervision that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance within all requirements;
 7. Ensure that employees use the hygiene facilities and observe the decontamination procedures specified;
 8. Ensure through on-site inspections that engineering controls are functioning properly and employees are using proper work practices; and,
 9. Ensure notification of other employees on site.

1.15 PERMITS, LICENSES AND NOTIFICATIONS

- A. The Contractor shall obtain all necessary permits and licenses in conjunction with the project asbestos abatement, transportation and disposal actions and timely notification furnished of such actions required by Federal, state, regional, and local authorities and as otherwise specified herein. The

Contractor shall notify the SCDHEC and the Owner in writing at least 10 days prior to the commencement of work in accordance with CFR 40 Part 61, Subpart M, state and local requirements to include the mandatory "Notification of Demolition and Renovation Record" form and other required notification documents. Notification shall be by Certified Mail - Return Receipt Requested. The Contractor shall furnish copies of the receipts to the Owner prior to the commencement of work.

- B. The Contractor shall notify the Owner if any of the following occur:
1. If the Contractor or any of its subcontractors are served with notice of violation of any law, regulation, permit or license which relates to this Contract.
 2. Proceedings are commenced which could lead to revocation of related permits or licenses.
 3. Permits, licenses or other Owner authorizations relating to this Contract are revoked.
 4. Litigation is commenced which would affect this Contract.
 5. If the Contractor or any of its Subcontractors become aware that its equipment or facilities are not in compliance or may fail to comply in the future with applicable laws or regulations.

1.16 SUBMITTALS

The following shall be submitted to the Owner and/or the Owner's Representative prior to the start of abatement operations:

- A. Manufacturer's catalog data for all materials and equipment to be used in the work, including brand name, model, capacity, performance characteristics and any other pertinent information.
- B. Asbestos Abatement Work Plan
1. A written work plan outlining the project sequencing, methods, etc. must be accepted in writing by the Owners' Representative prior to start of any site work.
- C. Safety Plan
1. A written safety plan and comprehensive site-specific accident prevention plan at least 30 days prior to start of work. This plan must be accepted in writing by the Owners' Representative prior to start of any site work.
- D. Initial Exposure Assessment
1. The Contractor shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of all operations to determine expected exposures. The assessment must be based on the competent person's review of all aspects of the Contractor's performance doing similar jobs. Only if similar controls are used and the work supervised by the same or similarly trained personnel, may past data be relied on. The assessment shall include consideration of all observations, information or calculations that indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the Contractor that indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "negative exposure assessment". The Contractor shall monitor employees at the beginning of the project. The exposure assessment shall be updated to reflect actual conditions based on the results of exposure monitoring.

- E. Employee Training and Certification of Worker Acknowledgement

The following training documentation for each employee to be engaged in the abatement work:

1. Copy of certification of accreditation for completion of “workers” course (for workers) or “Contractor/Supervisor” Course (for Contractors and onsite supervisory staff) meeting the requirements of EPA’s CFR 40 Part 763 or more stringent state criteria, and all subsequent annual refresher training certificates meeting same requirements.
2. A copy of a Contractor generated form entitled Certificate of Workers Acknowledgment shall be completed for each employee.

F. Encapsulant

A certificate stating that encapsulant meets the applicable specified performance requirements.

G. Negative Exposure Assessment

1. The Contractor may demonstrate that employee exposures will be below the PELs by data, which conform to the following criteria:
 - a. Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or
 - b. Where the Contractor has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with CFR 29 Part 1926.1101; and the data were obtained during work operations conducted under workplace conditions “closely resembling” the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the Contractor’s current operations, the operations were conducted by employees whose training and experience were no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or
 - c. The results of initial exposure monitoring of the current job made from breathing zone samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering the operations that are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

H. Field Tests

1. Air sampling reports.
2. Pressure differential recording local exhaust system.
3. Asbestos disposal waste disposal record report.

I. Air Sampling Results

1. Area Air Sampling (supplied by the Owner) and Personnel Air Sampling (provided by the Contractor)

Air sample fiber counting shall be completed and results provided within 24 hours after completion of a sampling period. The Owner shall be notified immediately of any airborne levels of asbestos fibers in excess of established requirements. Written sampling results shall be provided within 5 working days of the date of collection. The air sampling results shall be documented on a daily air-monitoring log.

J. Pressure Differential Recordings

1. Pressure differential recordings shall be provided daily on the same day collected. The Contractor's competent person shall review the readings prior to being submitted. The Owner shall be notified immediately of any variance in the pressure differential which could cause adjacent unsealed areas to have asbestos fiber concentrations in excess of 0.005 fiber per cubic centimeter (f/cc) or background, whichever is higher.

K. Notifications

1. The Owner shall be notified in writing 10 days prior to the start of asbestos work. A copy of the written notification shall be provided to any rental company concerning the intended use of rental equipment and the possibility of asbestos contamination, the decontamination procedures that will be used prior to the return of the equipment. A copy of the rental company's written acknowledgment and agreement shall be included in the submittal.

L. Certificates

1. Vacuum, Filtration and Ventilation Equipment
2. Manufacturer's certifications showing compliance with ANSI Z9.2 for:
 - a. Vacuums
 - b. Water filtration equipment
 - c. Ventilation equipment
 - d. Other equipment required for containing airborne asbestos fibers.

M. Records

1. Respirator Program
 - a. Records of the respirator program as required by ANSI Z88.2, CFR 29 Part 1910, Section 1910.134, CFR 29 Part 1926, Section 1926.58.
2. Asbestos Waste Shipment
 - a. Final completed copies of the Waste Shipment Record for all shipments of waste material as specified in CFR 40 Part 61, Subpart M and other required state waste manifest shipment records as specified herein. Detailed information of all asbestos waste disposals on the "MANDATORY WASTE SHIPMENT RECORD" form in accordance with revised CFR 40 Part 61, Subpart M. Such completed forms signed and dated by the agent of the landfill shall be submitted within 3 days after date of delivery of ACM to the landfill.

1.17 PERSONAL PROTECTIVE EQUIPMENT

A. Respirators

Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring:

1. Respirator Selection:
 - a. Where respirators are used, the Contractor shall select and provide, at no cost to the employee, the appropriate respirator, and shall ensure that the employee uses the respirator provided.

- b. The Contractor shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR 11.
- c. The Contractor shall provide a tight fitting powered, air-purifying respirator in lieu of any negative-pressure respirator specified whenever:
 1. An employee chooses to use this type of respirator, and
 2. This respirator will provide adequate protection to the employee.

B. Respirator Program:

1. Where respiratory protection is used, the Contractor shall institute a respirator program in accordance with CFR 29 Part 1910.134. The Contractor shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.
2. Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator face pieces whenever necessary to prevent skin irritation associated with respirator use.

C. Respirator Fit Testing:

1. The Contractor shall ensure that the respirator issued to the employee exhibits the least possible face piece leakage and that the respirator is fitted properly. The Contractor shall perform either quantitative or qualitative face fit tests at the time of initial fitting and at least every 6 months thereafter for each employee wearing a negative-pressure respirator. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn or of full-face piece air purifying respirators where they are worn at levels at which half-face piece air purifying respirators are permitted. A qualitative or quantitative fit test conforming to CFR 29 Part 1926, Appendix C shall be conducted by the Contractor for each Contractor worker required to wear a respirator, and for the Owner and authorized visitors who enter an asbestos regulated work area where respirators are required to be worn.

D. Whole Body Protection

1. Personnel exposed to asbestos shall be provided with whole body protection, as specified herein and such protection shall be worn properly. The Contractor and competent person supervisor shall select and approve the whole body protection to be used. The competent person shall examine work suits worn by employees at least once per work shift for rips or tears that may occur during performance of work. When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the work suit shall be immediately replaced. Disposable whole body protection shall be disposed of as asbestos contaminated waste upon exiting from the asbestos regulated work area. Reusable whole body protection worn shall be either disposed of as asbestos contaminated waste upon exiting from the asbestos regulated work area or be properly laundered in accordance with CFR 29 Part 1926 and as specified in the Contractor's Asbestos Hazard Abatement Plan. A worker shall not remove asbestos abatement whole body protection from the work site to be cleaned.
2. Disposable-impermeable coveralls with a zipper front shall be provided. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles.

3. Gloves shall be provided to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.) an appropriate glove shall be provided and used.
4. An additional coverall similar to that required in paragraph Coveralls shall be provided when the abatement and control method employed does not provide for the exit from the asbestos regulated work area directly into an attached decontamination unit. Cloth work clothes shall be provided for wear under the protective coverall and foot coverings when work is being conducted in low temperature conditions. Cloth work clothes shall be either disposed of as asbestos contaminated material or properly laundered in accordance with CFR 29 Part 1926 and as specified in the Contractor's Asbestos Hazard Abatement Plan.
5. Cloth socks shall be provided and worn next to the skin. If rubber boots are not used, footwear and disposable foot coverings shall be provided. Rubber boots shall be used in moist or wet areas. Only rubber boots shall be removed from the asbestos regulated work area after being thoroughly decontaminated. All other protective foot covering shall be disposed of as ACM.
6. Hood type disposable head covering shall be provided. In addition, protective headgear (hard hats) shall be provided as required. Hard hats shall only be removed from the asbestos regulated work area after being thoroughly decontaminated.
7. Contact lenses shall not be worn in asbestos regulated work areas. When vision correction is necessary to perform the work task, prescription safety eyewear shall be used. Personnel engaged in asbestos abatement activities in the asbestos regulated work area shall wear fog-proof goggles when the use of a full face-piece respirator is not required. Eye protection provided shall be in accordance with ANSI Z87.1.
8. All other items of whole body protection shall be provided as required and approved by the Contractor.

1.18 DECONTAMINATION AND LOAD OUT UNIT

- A. Contractor shall take into account emergency egress issues related to the entire building when completing his abatement work plan. Decontamination and load out units will be sized, constructed and located so as to not impede ingress and egress to and from other portions of the building where abatement is not occurring.
- B. Decontamination and load out units shall be the sized, constructed and located so as to not impede the access to ACM to be abated. If access to ACM above the decontamination and load out units require abatement personnel to utilize them to gain access (i.e. get on top of the units) to the ACM, they shall be constructed meeting all OSHA safety guidelines.
- C. Provide each work area with separate personnel decontamination unit and equipment load out unit. Ensure that the decontamination unit is the only means of ingress and egress for the work area and that all equipment, bagged waste material and other material exit the work area only through the decontamination unit and equipment load out unit.
- D. All persons entering and exiting the work area will follow the entry and exit procedures required by the applicable regulations and these specifications. Process all equipment and material exiting the work area through the decontamination unit and equipment load out unit and decontaminate as required by the specifications.
- E. Construct walls and ceilings of decontamination unit and equipment load out unit airtight with at least 6 mil polyethylene sheeting and attach to existing building components or to a temporary framework. The decontamination unit and equipment load out unit may be combined if the size of the work area will not permit both.

- F. Use a minimum of two layers of 6-mil opaque polyethylene to cover floor under decontamination unit. Construct doors from overlapping polyethylene sheets so that they overlap adjacent surfaces. Weight sheets at bottom so that they quickly close after release. Put arrows on sheets showing direction of overlap and travel.
- G. Provide temporary water service connection to the decontamination unit and equipment load out unit. Provide backflow protection at the point of connection to the Owner's system.
- H. Water supply must be properly pressured and temperature balanced at shower discharge.
- I. Provide adequate temporary electric power with ground fault protection and overhead wiring throughout the decontamination unit and equipment load out unit. Provide a sub-panel for all temporary power in changing room.
- J. Provide a decontamination unit consisting of serial arrangement of clean room, showers room and equipment room. Provide adequately sized decontamination unit to accommodate the number of employees scheduled for the project. The center chamber of the three chamber decontamination unit will be fitted with as many portable walk through shower stalls as necessary so that all employees will be able to go through the entire decontamination procedure within 15 minutes. Construct decontamination unit of opaque or colored polyethylene for privacy. Construct decontamination unit so that it will not allow for parallel routes of exit without showering

1.19 WARNING SIGNS AND TAPE

- A. Contractor shall ensure that all personnel understand the warning signs. Warning signs and tape printed in English and Spanish shall be provided at the regulated boundaries and entrances to asbestos regulated work areas. Signs shall be located at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Warning signs shall be in vertical format conforming to CFR 29 Part 1910, and CFR 29 Part 1926, minimum 500 by 360 mm 20 by 14 inches and displaying the following legend in the lower panel:
- B. Legend Lettering
 - 1. Danger 3-inch Sans Serif Gothic or Block
 - 2. Asbestos 1-inch Sans Serif Gothic or Block
 - 3. Cancer and Lung Disease Hazard 1-inch Sans Serif Gothic or Block
 - 4. Authorized Personnel Only 1-inch Sans Serif Gothic or Block
 - 5. Authorized Personnel Only 1-inch Gothic
 - 6. Respirators and Protective Clothing are required in this Area 1-inch Gothic
 - 7. Spacing between lines shall be at least equal to the height of the upper of any two lines. Warning tape shall be provided

1.20 WARNING LABELS

- A. Warning labels shall be affixed to all asbestos disposal containers used to contain asbestos materials, scrap, waste debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to requirements specified herein are acceptable. Warning labels shall conform to CFR 29 Part 1926 and shall be of sufficient size to be clearly legible displaying the following legend:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST
CANCER AND LUNG DISEASE

HAZARD

1.21 LOCAL EXHAUST SYSTEM

- A. A local exhaust system shall be provided in the asbestos regulated work area in accordance with ANSI Z9.2 and CFR 29 Part 1926. The system will provide at least 4 air changes per hour inside of the containment. The local exhaust system shall be operated 24 hours per day, until the asbestos regulated containment area is removed and shall be leak proof to the filter and equipped with HEPA filters. Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.51 mm (0.02 inch) 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic recording instrument. In no case shall the building ventilation system be used as the local exhaust system for the asbestos regulated work area. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filter shall be UL labeled. The local exhaust system shall terminate out of doors. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste.
- B. Prior to the start of the abatement the Contractor shall inspect all negative air machines and insure that all gaskets are in place, that all HEPA filters in the units are properly seated and mechanical brackets that secure the HEPA filters are intact. This inspection will be conducted in conjunction with the Owners Representative prior to the start of abatement activities. All deficiencies associated with the negative air machines shall be repaired prior to the start of the abatement. All defective units shall be removed and replaced.

1.22 TOOLS

- A. Vacuums shall be leak proof to the filter, equipped with HEPA filters, be of sufficient capacity and provide the necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system or has otherwise been approved for use by the Owner. All residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from asbestos regulated work areas.

1.23 RENTAL EQUIPMENT

- A. If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the Contractor's notification shall be obtained from the rental agency.

1.24 PERSONNEL AIR MONITORING EQUIPMENT (CONTRACTOR PROVIDED)

- A. The Contractor is responsible for all personnel sampling as outlined in Section 3.12 herein, and shall select and approve the air monitoring equipment to be provided and used by the Contractor for evaluation of personnel exposure levels to airborne asbestos fiber concentrations within the work area. The equipment shall include, but not be limited to:
 - 1. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit, which shall maintain a constant flow even as filter resistance increases due to accumulation of fiber and debris on the filter surface,

2. Standard 25 millimeter diameter, 0.8 micrometer micron pore size, mixed cellulose ester membrane filters and cassettes with nonconductive barrels and shrink bands, to be used with low flow pumps in accordance with CFR 29 Part 1926, for personal air sampling,
3. Standard 25 millimeter diameter, 0.45 micrometer micron pore size, mixed cellulose ester membrane filters and cassettes with non-conductive barrels and shrink bands, to be used with high flow pumps when conducting environmental area sampling using NIOSH Pub No. 84-100 Methods 7400 and 7402 and the transmission electric microscopy method specified at CFR 40 Part 763,
4. Appropriate plastic tubing to connect the air sampling pump to the selected filter cassette,
5. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 degrees Fahrenheit to plus 140 degrees Fahrenheit and traceable to a National Institute for Standards and Technology (NIST) primary standard.

1.25 EXPENDABLE SUPPLIES

A. Glove Bag

1. Glove bags shall be provided as described in CFR 29 Part 1926. The glove bag assembly shall be prefabricated with a preprinted OSHA warning label and shall typically be constructed of 6 mil thick transparent polyethylene or polyvinyl chloride sheeting and at least two inward projecting long sleeves and an internal pouch. The glove bag shall be constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. The glove bag shall have sufficient capacity to hold removed materials and permit leak-tight sealing.

B. Duct Tape

1. Industrial grade duct tape shall be provided in 2 inch and 3 inch widths and shall be suitable for bonding sheet plastic and disposal containers specified herein.

C. Disposal Containers

1. Leak-tight disposal containers shall be provided for ACM generated as specified herein. Leak-tight means neither solids, liquids or dust can escape or spill out. All disposal containers shall be either pre-labeled or affixed with OSHA warning label as specified in CFR 29 Part 1926.

D. Disposal Bags

1. 6-mil thick leak-tight pre-labeled (OSHA warning label) bags shall be provided for placement of asbestos generated waste.

E. Leak-tight Wrapping

1. Two layers of 6-mil (minimum) thick polyethylene sheeting stock shall be used for the containment of removed asbestos-containing components or materials such as reactor vessels, large tanks, boilers, insulated pipe segments and other materials too large to be placed in disposal bags. Upon placement of the ACM component or material, each layer shall be individually leak-tight sealed with duct tape.

F. Fiberboard Drums

1. Fiberboard drums shall be provided if required by state or local requirements.

G. Cardboard Boxes

1. Heavy-duty corrugated cardboard boxes coated with plastic or wax to retard deterioration from moisture shall be provided if required by state and local requirements. Boxes shall fit into selected ACM disposal bags. Filled boxes shall be sealed leak-tight with duct tape.

H. Sheet Plastic

1. Sheet plastic shall be provided as specified herein and in the largest sheet size necessary to minimize seams, as indicated on the project drawings.

I. Polyethylene Sheet – General

1. 6-mil (minimum) thick polyethylene sheeting shall be clear, frosted and/or black and conform to ASTM D 4397.

J. Polyethylene Sheet - Flame Resistant

1. Where a potential for fire exists, 6-mil (minimum) thick flame-resistant polyethylene sheet shall be provided. Flame-resistant polyethylene film shall be frosted and/or black and shall conform to the requirements of NFPA 701.

K. Polyethylene Sheet-Reinforced

1. 6-mil thick reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the asbestos regulated work area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

L. Viewing Inspection Window

1. Where feasible, a minimum of one clear 1/8-inch thick acrylic sheet, 18 inches by 24 inches, shall be installed as a viewing inspection window at eye level on a wall in each containment enclosure. All such windows shall be sealed leak-tight with industrial grade duct tape.

M. Wetting Agents

1. Amended water shall meet the requirements of ASTM D 1331.

N. Removal Encapsulant

1. Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM equal to or greater than provided by amended water

O. Strippable Coating

1. Strippable coating found in aerosol cans, will be used to adhere to surfaces and to be removed cleanly by stripping at the completion of work. Since these coatings have a hydrocarbon-carrying agent, its use shall be confined to well ventilated areas only.

P. Non-combustible Foam

1. All foam shall be Hilti CF 810 CJ Insulating Foam or an approved equivalent.

1.26 MATERIAL SAFETY DATA SHEETS

- A. Material safety data sheets (MSDS) shall be provided for all hazardous materials brought onto the work-site. One copy shall be provided to the Owner's onsite Representative and one copy shall be included in the Contractor's Hazard Communication Program.

1.27 OTHER ITEMS

- A. A sufficient quantity of other items shall be provided that may include, but not be limited to: scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, other tools, scaffolding, staging, enclosed chutes, wooden ladders, lumber necessary for the construction of asbestos regulated containment work areas, UL approved temporary electrical equipment, material and chords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, logbooks, log forms, markers with indelible ink, spray paint in bright color to mark areas, project boundary fencing, etc.

1.28 PRECONSTRUCTION CONFERENCE

- A. The Contractor, and the Contractor's designated onsite "competent person," shall meet with the Owners Representative and Owner prior to beginning work at a preconstruction conference to discuss the details of the Contractor's Asbestos Hazard Abatement Plan, including work procedures and safety precautions. Once accepted by the Owners Representative and Owner, the Asbestos Hazard Abatement Plan, will be enforced as if an addition to the specification.

PART 2 - PRODUCTS

2.1 ENCAPSULANTS

- A. Encapsulant shall conform to USEPA requirements, shall contain no toxic or hazardous substances.

PART 3 - EXECUTION

3.1 GENERAL

- A. Asbestos abatement work shown on plans and drawings shall be performed as specified herein. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, or applying cosmetics shall not be permitted in the asbestos regulated work area. All hot work (burning, cutting, welding, etc.) shall be conducted under strictly controlled conditions in conformance with CFR 29 Part 1926. Personnel of other trades not engaged in asbestos abatement activities shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions as required by the Contractors Asbestos Abatement Plan are complied with. The building heating, ventilating, and air conditioning system shall be shut down, all openings to the system capped leading into the abatement work area.
- B. Electrical service shall be disconnected where necessary to facilitate wet removal. Temporary electrical service shall be provided by the Contractor as needed. Temporary power provided by the Contractor shall be adequate to power for the Owners' Representatives' air monitoring equipment.
- C. If an asbestos spill occurs outside of the asbestos regulated work area, work shall be stopped and the Owners' Representative and Owner shall be notified. The condition shall be corrected to the satisfaction of the Owners' Representative and Owner including air sampling, prior to resumption of work.

3.2 PROTECTION OF ADJACENT WORK OR AREAS TO REMAIN

- A. Asbestos abatement work shall be performed without damage or contamination of adjacent work or areas. Where such work or area is damaged or contaminated as verified by the Owners Representative using visual inspection and/or sample analysis, it shall be restored to its original condition or decontaminated by the Contractor at no expense to the Owner as deemed appropriate by the Owners

Representative. This includes inadvertent spill of dirt, dust or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, work shall stop in all affected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and/or sampling analysis results are obtained and have been evaluated by the Contractor and the Owners Representative, work may proceed.

3.3 FURNISHINGS, FIXTURES AND EQUIPMENT

A. Removal of Furnishings and Equipment

1. The Owner will remove all sensitive equipment and furniture from the work areas before asbestos abatement work begins.

B. Items to Remain

1. Contractor shall protect all mechanical, electrical, plumbing and IT cabling that is to remain located in areas affected by abatement operations. Only those components designated for removal/demolition shall be removed. Costs for repairs associated with damage incurred during abatement, demolition and put-back operations will be at the GC's expense.

3.4 BUILDING VENTILATION SYSTEM AND CRITICAL BARRIERS

- A. Any building ventilating system supplying air into or returning air out of an asbestos regulated work area shall be shut down and isolated by lockable switch or other positive means in accordance with CFR 29 Part 1910, Section 1910.147, to prevent accidental start-up and isolated by airtight seals to prevent contaminant spread through the system. Air-tight critical barriers shall be installed on all building ventilating openings that supply, or return air from the building ventilation system or serves to exhaust air from the building, that are located inside the asbestos regulated work area. The critical barriers shall consist of air-tight rigid covers for building ventilation supply and exhaust grills where the ventilation system is required to remain in service during abatement. Edges to wall, ceiling and floor surfaces shall be sealed with industrial grade duct tape.

3.5 PRECLEANING

- A. Surfaces shall be cleaned by HEPA vacuum and adequately wet wiped prior to establishment of containment.

3.6 ASBESTOS CONTROL AREA REQUIREMENTS

- A. Regulated containment areas shall be established and maintained for each abatement work task. Viewing inspection window shall be installed on the wall of the containment enclosure, as specified herein. The following procedures shall be performed sequentially and each activity shall be completed before proceeding to the next. Various steps may be omitted for an individual containment area when that work is not specified on the drawings.
 1. Furnishings in the asbestos regulated work area shall be cleaned, protected in place removed as specified herein.
 2. Tools, scaffolding, staging, and incidentals necessary for the work shall be placed in the area to be isolated prior to erection of work area enclosed containment.
 3. Building ventilating systems serving the work area shall be shutdown or isolated.
 4. Power to the asbestos regulated work area shall be locked-out by switching off all breakers serving power or lighting to this area in accordance with CFR 29 Part 1910.

5. Surfaces shall be pre-cleaned as required herein.
6. Personnel Decontamination Unit shall be installed as specified. Load-Out unit shall be installed as specified herein.
7. Critical barriers shall be installed as required for building ventilation system and in the plenum space as required herein.
8. Local exhaust ventilation system shall be installed as specified.
9. Containment area shall be installed as required for each abatement task as specified.

3.7 CLEAN-UP

- A. The Contractor shall maintain a clean work area by performing on a daily basis the following housekeeping functions at the end of each shift:
 1. Loose ACM shall be prepared for disposal by packaging the waste and removing it from the work area to the load-out area.
 2. Work area shall be HEPA vacuumed.
 3. Polyethylene in work and high traffic areas shall be inspected and repaired.
 4. Containment area shall be wet wiped if air sample results exceed prescribed level.

3.8 GLOVE BAG

- A. Asbestos regulated work areas shall be established as specified for glove bag abatement should it be required. Designated boundary limits for the asbestos work shall be established with rope or other continuous barriers and all other requirements for asbestos control areas shall be maintained including area signage and boundary warning tape as specified. Area monitoring of airborne asbestos fibers shall be conducted during the work shift at the designated boundary limits and personal air monitoring shall be performed for each worker engaged in asbestos handling (removal, disposal, transport and other associated work) at such frequency as specified in the Contractor's air monitoring plan. If the concentration of asbestos fibers monitored at the breathing zone of the workers or within the designated limits at any times exceeds 0.01 f/cc or the pre-abatement level, whichever is greater, work shall be stopped and the Owner shall be notified. The Contractor shall correct the condition to the satisfaction of the Owners' Representative and Owner to include visual inspection and air sampling. The Owners' Representative and Owner will only allow resumption of work upon notification. If adjacent areas outside the regulated work area are contaminated, the Contractor at his expense, shall clean the contaminated area, visually inspect the cleaned area, and conduct air monitoring.

3.9 ASBESTOS HANDLING PROCEDURES

- A. The Contractor shall employ proper handling procedures in accordance with CFR 29 Part 1926 and CFR 40 Part 61, Subpart M and the specification requirements herein. The specific abatement techniques and items identified shall be detailed in the Contractor's Asbestos Hazard Abatement Plan including but not limited to details of construction materials, equipment, and handling procedures. The following task descriptions detail the required abatement handling technique.
 1. Removal of ACM From Interior Architectural System
 - a. After completion of all asbestos removal work, surfaces from which asbestos-containing materials have been removed shall be wet wiped or sponged clean, or cleaned by some equivalent method to remove all visible residue. After the gross amounts of asbestos have been removed from every surface, all remaining visible accumulations of asbestos on floors shall be collected using plastic shovels, rubber squeegees, rubber dustpans and

HEPA vacuum cleaners as appropriate to maintain the integrity of the containment barrier. When all ACM has been removed, workmen shall use HEPA vacuum cleaners to vacuum every surface. Particular attention shall be paid to those surfaces or locations that could harbor accumulations or residual asbestos dust.

2. Sealing Contaminated Items Designated for Disposal

- a. Contaminated architectural, mechanical, and electrical appurtenances and other contaminated items designated for removal shall be coated with an asbestos lockdown encapsulant at the demolition site before being removed from the asbestos control area. These items need to be vacuumed prior to application of the lock-down encapsulant.
- b. The asbestos lockdown encapsulant shall be tinted a contrasting color. It shall be spray applied by airless method. Thoroughness of sealing operation shall be visually gauged by the extent of colored coating on exposed surfaces.

3.10 FINAL CLEANING AND PRE-VISUAL INSPECTION

- A. The asbestos regulated work area shall be cleaned at the completion of the abatement by collecting, packing, and storing all gross contamination. A final cleaning shall include HEPA vacuum and wet cleaning of all exposed surfaces and equipment in the asbestos regulated work area. Upon completion of the cleaning, the Contractor's competent person shall conduct a pre-visual inspection of the cleaned area in preparation for the final inspection to be conducted with the Owners Representative. The Contractor shall re-clean, as necessary. Upon completion of the final cleaning, the Contractor and the Owners Representative shall conduct a final visual inspection of the cleaned work area in accordance with ASTM E 1368 and document the results on the Final Cleaning and Visual Inspection. If the Owners Representative rejects the abatement area as not meeting final cleaning requirements, the Contractor shall re-clean as necessary and have a follow-up inspection with the Owners Representative. Re-cleaning and follow-up re-inspections by the Owners Representative shall be at the Contractor's expense.

3.11 LOCKDOWN

- A. Prior to removal of plastic barriers and after clean up of gross contamination and final visual inspection, a post removal (lockdown) encapsulant shall then be spray applied to foundation walls, underside of floors, and all vertical and horizontal surfaces within the work area. The abatement area shall include but not be limited to constructed enclosures, barriers, polyethylene sheeting that covers any furnishings, and equipment articles to be discarded, critical barriers, air locks, load out units for bag removal, and onsite constructed decontamination unit.

3.12 AIR MONITORING

Air Monitoring by the Contractor:

- A. The Contractor shall provide daily 8-hour TWA PEL and daily 30-minute Excursion Limit personal breathing zone air monitoring in accordance with and in addition to 29 CFR 1926.1101(f), including all amendments, and Appendix A of the OSHA standard within the work sites throughout all asbestos work site enclosure, material stripping, removal, cleaning encapsulation operations, or any other activities which might disturb asbestos-containing materials to insure that the workers are adequately protected at all times.
- B. Samples shall be collected by calibrated pumps whose flow rates can be determined to an accuracy of plus or minus 5 percent. Calibrate pumps both prior to and after each use with a representative filter in line.

- C. Analysis of samples shall be done in accordance with 29 CFR 1926.1101(f) and Appendix A of the OSHA standard. The results of all samples shall be posted outside the containment area within 48 hours of sampling and maintained there until the project has been concluded. This data shall include both the results of individual samples and the results of 8 hour TWA and 30-minute Excursion Limit determinations. Posted results shall include a synopsis of work activities for which the results are representative. Records shall be made of each employee's personal monitoring results and the employee shall be notified of these results within 15 days either individually or by posting them in a central location in accordance with 29 CFR 1926.1101(f).
- D. All analytical results from the Contractor's air monitoring shall be posted at the work site entrance as soon as they become available and not more than 48 hours from the time in which the samples were taken. Copies of all personnel air monitoring results shall be supplied to the Owner's Representative.

Air Monitoring by the Owner:

- A. The Owner shall provide the services of an independent testing laboratory with qualified analysts and appropriate equipment to conduct sample analyses of area air samples using the methods prescribed in CFR 29 Part 1926 Section 1926.58 to include NIOSH Pub No. 84-100 Method 7400. Sampling performed in accordance with CFR 29 Part 1926 Section 1926.58 shall be performed by the Owners Representative. The Owners Representative shall perform final clearance air sampling utilizing Phase Contrast Microscopy (PCM) analysis. For environmental quality control and final air clearance NIOSH Pub No. 84-100 Method 7400 (PCM) with optional confirmation of results by NIOSH Pub No. 84-100 Method 7402 Transmission Electron Microscopy (TEM) the mandatory EPA TEM Method specified at CFR 40 Part 763 shall be used. For environmental and final clearance samples, sampling will be conducted at a sufficient velocity and time to collect a sample volume necessary to establish the limit of detection of the method used at 0.01 f/cc. Asbestos fiber concentration confirmation of the total fiber concentration results of environmental, quality assurance and final air clearance samples, collected and analyzed by NIOSH Pub No. 84-100 Method 7400, may be conducted.
 - 1. Sampling Prior to Asbestos Work
 - a. The baseline air sampling shall be established one day prior to the masking and sealing operations for each abatement area site. The background shall be established by performing area sampling in similar but uncontaminated sites in the building. Pre-abatement (NIOSH Pub No. 84-100 Method 7400, PCM, and EPA TEM Method specified at CFR 40 Part 763) air samples shall be collected at a minimum of three locations. These locations are: outside the building, inside the building, but outside the abatement area perimeter and inside each abatement area. One sample shall be collected for every 185 square meters 2000 square feet of floor space. At least two sample locations shall be collected outside the building. The PCM samples shall be analyzed immediately; and if any result in fiber concentration greater than 0.01 f/cc, asbestos fiber concentration shall be confirmed using NIOSH Pub No. 84-100 Method 7402 (TEM) at Owner expense.
 - 2. Sampling During Asbestos Abatement Work
 - a. The Owner shall provide area air sampling as indicated in CFR 29 Part 1926 Section 1926.58, and meet state and local requirements. Area air sampling shall be conducted at least once every shift, close to the work in the containment area, outside the clean room entrance to the containment area, (outside air lock for mini and modified containment areas), inside the clean room (inside the air lock for mini and modified containment areas), outside the load-out unit exit, if used, and at the exhaust discharge point of the local exhaust system.
 - 3. Sampling After Final Clean-Up (Clearance Sampling)
 - a. Prior to conducting final air clearance sampling, the Contractor and the Owners Representative shall conduct a final visual inspection of the Contractor's final cleanup of

the abated asbestos regulated work area as specified. Final clearance air monitoring shall not begin until acceptance of this final cleaning by the Owners Representative. The Owners Representative will provide area sampling of airborne fibers using air sampling techniques as defined in the EPA 560/5-85-024 or as otherwise required by Federal or state requirements.

4. Air Clearance Failure

- a. Should clearance-sampling results fail to meet the final clean-up requirements, the Contractor shall pay all costs associated with all required re-cleaning, re-sampling and analysis until final clean-up requirements are met.

3.13 SITE INSPECTION

- A. While performing asbestos removal work, the Contractor shall be subject to onsite inspection by the Owners Representative who may be assisted by or represented by quality assurance, safety and industrial hygiene personnel. If the work is found to be in violation of this specification, the Owner or his representative will issue a stop work order to be in effect immediately and until the violation is resolved. Standby time required to resolve the violation shall be at the Contractor's expense.

3.14 CLEAN-UP AND DISPOSAL

A. Housekeeping

1. Surfaces of the regulated work area shall be kept free of accumulation of asbestos-containing debris. Meticulous attention shall be given to restricting the spread of dust and debris during the abatement activities. HEPA filtered vacuum cleaners shall be used. The space shall not be blown down with compressed air.

B. Title to Materials

1. Material resulting from abatement work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified in applicable local, state, and Federal regulations and herein.

C. Collection and Disposal of Asbestos

1. Asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in sealed leak-tight, containers (e.g. double 6-mil plastic bags), sealed 6-mil double wrapped polyethylene sheet, sealed fiberboard boxes or other approved containers. Waste within the containers must be wetted in case the container is breached. A warning and Department of Transportation (DOT) label shall be affixed or preprinted on each bag. Waste asbestos material shall be disposed of at an EPA, state and local approved asbestos landfill. For temporary storage, sealed impermeable containers shall be stored in asbestos waste load-out unit or in a storage/transportation conveyance (i.e.; dumpster, roll-off waste boxes, etc.) in a manner as accepted by and in an area as assigned by the Owner. Procedure for hauling and disposal shall comply with CFR 40 Part 61, Subpart M, and state, regional, and local standards.

D. Asbestos Waste Shipment Record

1. The Contractor shall complete and provide final completed copies of the Waste Shipment Record for all shipments of waste material as specified in CFR 40 Part 61, Subpart M and other required state waste manifest shipment records within 3 days of delivery to the landfill.

APPENDIX

**ASBESTOS CONTAINING MATERIALS
INVESTIGATION REPORT**

**WELSH HUMANITIES OFFICE BLD.
COLUMBIA, SOUTH CAROLINA 29201**



**UNIVERSITY OF
SOUTH CAROLINA**

REPORT PREPARED FOR:

**UNIVERSITY OF SOUTH CAROLINA
743 Green Street
Columbia, South Carolina 29208**

BY:

**F&ME CONSULTANTS
Geotechnical / Environmental / Materials**

**3112 Devine Street
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February 10, 2012

E5200.05

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- Summary of Inspection
- Physical Assessment Data Sheets
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APPENDIX D

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I. EXECUTIVE SUMMARY

As requested, on January 19, 2012, F&ME Consultants completed a limited Asbestos Containing Materials (ACM) investigation of the University of South Carolina's Welsh Humanities Office Building located on the Columbia, South Carolina campus. This investigation was performed due to planned renovations to the ground floor of the existing building structure, and was conducted in accordance with SCDHEC, AHERA, USEPA, ASHARA, NESHAP, and OSHA regulations.

It is our understanding that the scope of the planned renovations consists of the demolition of the existing offices/ classrooms; constructing a new office space with multiple offices; and modifications of the existing mechanical systems. We also understand that due to the magnitude of these renovations and the requirement that they occur while the building is unoccupied, the renovations will need to be sequenced over the summer break.

The scope of this investigation was to identify, sample and assess materials suspected of containing asbestos minerals within areas to be impacted by the ground floor renovations, and was limited to the central corridor at the elevators and west offices/classrooms of the ground floor with the exception of the east wing. The external breezeways were also included.

Our investigation identified six (6) asbestos containing materials located in the above mentioned area of the building structure. The confirmed ACM include the following: spray-applied textured ceiling surfacing material; black mastic on HVAC ducts; red caulking on HVAC joints in chase; mudded pipe elbows in the basement; pipe wrap on fiberglass pipe insulation; and exterior window glazing which seals the windows to the existing brick walkways.

The results, conclusions and recommendations from this limited investigation are representative of the conditions observed at the site on the dates of the field inspection. F&ME does not assume responsibility for any changes in conditions or circumstances that occur after the inspection.

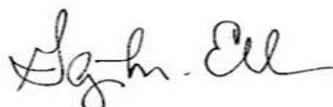
We sincerely appreciate the opportunity to assist you with this project. Should you have any questions or require additional information concerning this investigative report, please do not hesitate to contact us at (803) 254-4540.

Sincerely,

F&ME CONSULTANTS



Michael S. Mincey
Environmental Professional
Asbestos Consultant/Management Planner
SCDHEC License No: MP-00161
Expiration Date 02/11/2012



Glynn M. Ellen
Senior Environmental Professional
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Expiration Date 02/11/2012

II. INTRODUCTION

As requested, on January 19, 2012, F&ME Consultants completed a limited Asbestos Containing Materials (ACM) investigation of the University of South Carolina's Welsh Humanities Office Building located on the Columbia, South Carolina campus. This investigation was performed due to planned renovations to the ground floor of the existing building structure, and was conducted in accordance with SCDHEC, AHERA, USEPA, ASHARA, NESHAP, and OSHA regulations. This investigation was limited to the central corridor at the elevators and west offices/classrooms of the ground floor with the exception of the east wing.

We understand that the Welsh Humanities Office building was constructed in the late 1960's. Our field investigation revealed evidence of renovations and alterations that have occurred over the years, including bathroom additions and wall removal/ replacement. Prior analytical results obtained from USC's HAZMAT personnel indicate that the interior spray-applied textured ceiling surfacing material was positive for asbestos; the samples that were analyzed were apparently collected in the east end of the ground floor. Due to the friable nature of the material as well as the heavy traffic from USC faculty and students, F&ME personnel did not sample this material. Therefore, for the purposes of this report, this material will be assumed positive.

The results, conclusions and recommendations from this investigation are representative of the conditions observed at the site on the date of the field inspection. F&ME does not assume responsibility for any changes in conditions or circumstances that occur after the inspection. Use of this document for bidding purposes is not recommended without prior consultation with F&ME. No other environmental concerns are addressed in this report.

III. INVESTIGATION RESULTS

The purpose of this limited ACM investigation was to locate, sample and record the physical characteristics of suspect ACM within the interior and exterior portions of the subject building structure to be impacted by the renovations scheduled for the summer of 2012; to provide estimated quantities of those materials; and to obtain laboratory analytical results for determining the existence or non-existence of asbestos minerals. All remaining building materials (i.e. concrete, wood, brick, carpet, etc.) were not considered suspect.

Our visual inspection revealed a concrete-framed building structure with poured in place support columns and floor slabs. The exterior building envelope is constructed of precast panels. Interior finishes include masonry block and concrete walls; plaster walls and ceilings; sheetrock walls; spray applied textured ceiling surfacing material (both interior and exterior) and brick floors.

Bulk samples of suspect materials were analyzed by Polarized Light Microscopy (PLM) in accordance with EPA 600/R-93/116. Confirmation Transmission Electron Microscopy (TEM) was also performed on any non-friable organically bound materials that tested negative for asbestos content as per SCDHEC regulations effective June 27, 2008. Proper sampling and chain-of-custody protocol were followed to ensure appropriate handling and delivery of samples to the analytical laboratory. See Appendix A for the Sample Location Plan (Figure 2) and Homogeneous Area Plan (Figure 3).

Suspect materials identified during the investigation consisted of black pipe mastics on fiberglass thermal system insulation (TSI) joints and elbows; mudded pipe elbows; pipe wrap on fiberglass pipe insulation; baseboard adhesive; drywall and associated joint compound; fire stop caulking at wall penetrations; spray applied textured ceiling surfacing material (both interior and exterior); exterior window glazing and HVAC ductwork mastics.

A total of forty-six (46) samples were extracted during this investigation. Due to multiple layering of the materials and activation of a positive stop protocol, forty-two (42) samples were analyzed by PLM and three (3) samples were TEM confirmed. Of the materials analyzed, five (5) tested positive for asbestos mineral content (see Table II in Appendix B). Furthermore, one (1) material (interior spray-applied textured ceiling surfacing material) was assumed positive based on analytical data from USC HAZMAT personnel. The laboratory bulk sample analytical reports are located in Appendix B.

IV. ASBESTOS CONTAINING MATERIALS DESCRIPTION/ASSESSMENT

The following is a list of the confirmed asbestos containing materials (See Figure 3 - Homogeneous Area Plan):

- **HA-1 – Spray-Applied Textured Ceiling Material (~1,190 S.F.)**
The interior spray-applied textured ceiling material was applied during the building’s original construction. The textured ceiling material is white in color. This material was found on all interior ceilings except for the bathrooms (men’s and women’s), the electrical room and the mechanical chase. However, overspray may be hidden in the mechanical chase. This material is assumed positive based on previous sampling results provided by the University’s HAZMAT personnel. Overall, this material appears to be in a good condition with little to no damage being noted.
- **HA-2 –Black Mastic on HVAC Ducts (~300 L.F.)**
Metal ductwork associated with the original HVAC system located within the building structure was insulated with a non-asbestos duct wrap insulation. Seams of this insulation were sealed with a black mastic. This material was found throughout the ground floor the building. This material may be hidden within closed chases in the building. Overall, this material appears to be in a good condition with little to no damage being noted.
- **HA-3 – Red HVAC Caulking (~25 L.F.) (Est.)**
The red caulking was identified on the seams of the vertical HVAC duct located within the closed chase. The samples collected were taken from the 2nd floor mechanical chase where access was available through a locked door. This material is assumed to be present on the ground floor of the mechanical chase and will require abatement prior to any renovation activities if the renovation activities require disturbing this material. Overall, this material appears to be in a good condition with little to no damage being noted.
- **HA-4 – Exterior Window Glazing/Caulking (~145 L.F.)**
The exterior storefront windows have a glazing or sealer that was found at the base of the exterior metal window casing. This material is grey in color and provides a waterproof seal between the brick walkway and the metal casing. Overall, this material appears to be in a good condition with little to no damage being noted. This glazing will have to be removed,

handled and disposed of as an asbestos containing material should renovation activities require disturbing this material.

- HA-5 – Black Pipe Mastic (Unknown S.F.)

The black pipe mastic is located above the plaster ceiling throughout the ground floor of the subject structure. It was found on the joints and elbows of fiberglass insulated domestic water lines. The mastic appears to be in good condition with little to no damage. Should the renovation activities impact this material, the material will have to be removed, handled and disposed of as an asbestos containing material.

- HA-6 – Mudded Elbows (6 Elbows)

The mudded elbows are located in the basement of the building structure. These elbows insulate supply and return lines feeding to floor mounted heating units to the 1st floor. Overall, this material appears to be in a good condition with little to no damage being noted. Should the renovation activities impact this material, the material will have to be removed, handled and disposed of as an asbestos containing material and by certified asbestos abatement personnel.

Quantities for the above-referenced asbestos containing materials are estimated based on their occurrence within the areas corresponding with the proposed renovation area; they not to be used for bidding purposes.

The Appendices include a Site Location Map (Figure 1), a Sample Location Plan (Figure 2), a Homogeneous Area Plan (Figure 3), a Summary of Samples (Table I), a Summary of Asbestos Containing Materials (Table II), Physical Assessment Data Sheets, Bulk Sample Analysis Reports, Personnel Certifications, and the SCDHEC Regulations and associated Abatement Project Forms.

This report has been prepared exclusively for the University of South Carolina, and shall not be disseminated in whole or part to other parties without prior consent from the University of South Carolina or F&ME Consultants, Inc. No other environmental issues are addressed in this report.

V. RECOMMENDATIONS

Asbestos containing materials must be handled in accordance with state and federal regulations. Any activities that will impact these materials must be performed by licensed/certified asbestos contractors.

SCDHEC regulates any disturbance to friable ACM, which is therefore considered to be regulated asbestos containing materials (RACM). SCDHEC requires removal of friable ACM prior to building renovation or demolition activities. Furthermore, the disturbance of Category II non-friable ACM such as Transite generally renders them to become friable, or regulated. However, the removal of Category I non-friable ACM such as floor tiles, mastics, floor sheeting and certain roofing materials is not required *if these materials are in good condition*. If it is anticipated that such materials will become crumbled or will experience severe forces, SCDHEC would also consider these materials to be RACM.

SCDHEC legally tracks the deposition of all ACM into landfills. Therefore, SCDHEC must be notified prior to abatement and demolition projects in order to legally arrange for the proper disposal of ACM and associated contaminated debris. Most landfills will not accept ACM or asbestos-contaminated debris. This is an important consideration for the owner because it is more expensive to dispose of ACM than normal debris. If the abatement/demolition contractor selects a landfill that accepts ACM, the abatement/demolition debris could be transported to the permitted landfill. However, since the ACM would be mixed in with the total

demolition debris, all of the debris would be considered to be ACM resulting in much higher disposal costs. Therefore, it is recommended that removal of all asbestos is conducted prior to and separate from building demolition activities.

OSHA regulates disturbances to all ACM. Unlike SCDHEC, OSHA does not distinguish between friable and non-friable ACM, regulated and non-regulated ACM, and/or ACM in good condition versus ACM in poor/damaged condition. Instead, OSHA regulates all contact with asbestos.

Due to the proposed renovation activities, the removal of all ACM is recommended prior to commencing activities that will impact them. This work must be performed by AHERA-certified and SCDHEC-licensed Abatement Contractors in accordance with all applicable regulations and guidelines. SCDHEC must be notified at least ten (10) days prior to abatement activities. All asbestos waste, including contaminated building materials (i.e. non-asbestos floor tiles with asbestos containing mastics, etc.), must be deposited in a landfill permitted by SCDHEC for receiving ACM.

If any concealed and/or inaccessible ACM is encountered during asbestos abatement or renovation activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner/ Abatement Contractor/ Asbestos Consultant for an appropriate response action. SCDHEC must be notified in the event that any additional ACM is discovered, as well as if there are any changes in the condition of any identified ACM.

Written notification (SCDHEC Form 3430) must be submitted to SCDHEC at least two (2) calendar weeks prior to initiation of renovation/demolition abatement disturbances. A copy of this inspection report and applicable fee payment must be attached to the notification. Additional fees may be required. Copies of all notifications and documents pertinent to the abatement operations, as required by regulations, are to be posted on the job site.

The Owner/Operators must notify all parties involved with this project of the nature of the work as well as the locations and quantities of asbestos materials to be disturbed or those located near demolition/removal work areas. This notification requirement is also extended to any persons/employees who work near the demolition/removal work areas.

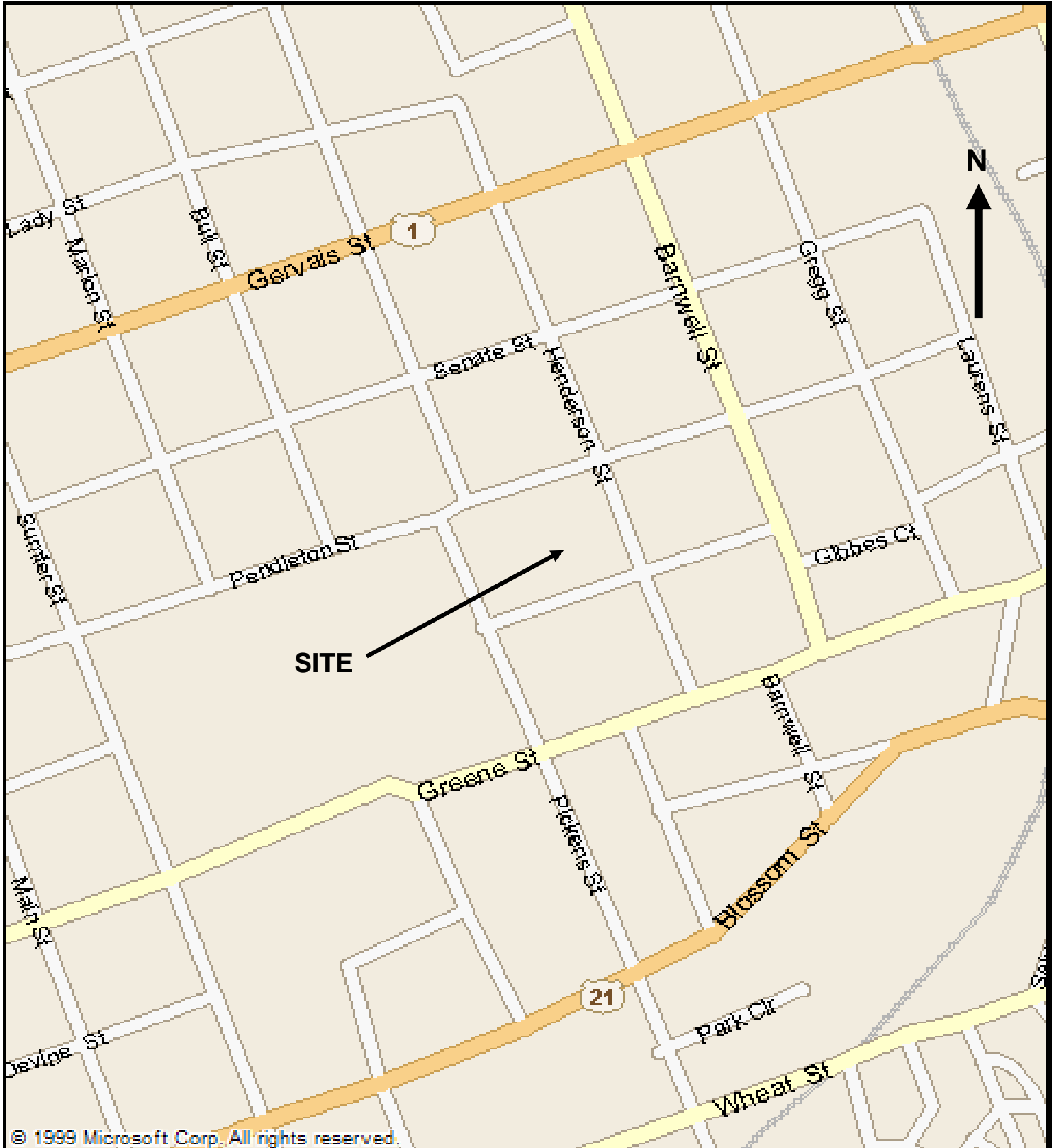
The Abatement Contractor is responsible for daily personal air sampling for abatement workers in compliance with current OSHA standard 29 CFR 1926.1101. All remaining air monitoring services required for a renovation project (i.e. backgrounds, areas, and clearances) will be provided by the Owner or the Owner's Representative, as required by SCDHEC.

APPENDIX A

Site Vicinity Map (Figure 1)

ACM Sample Location Plan (Figure 2)

Homogeneous Area Plan (Figure 3)



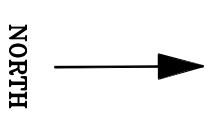
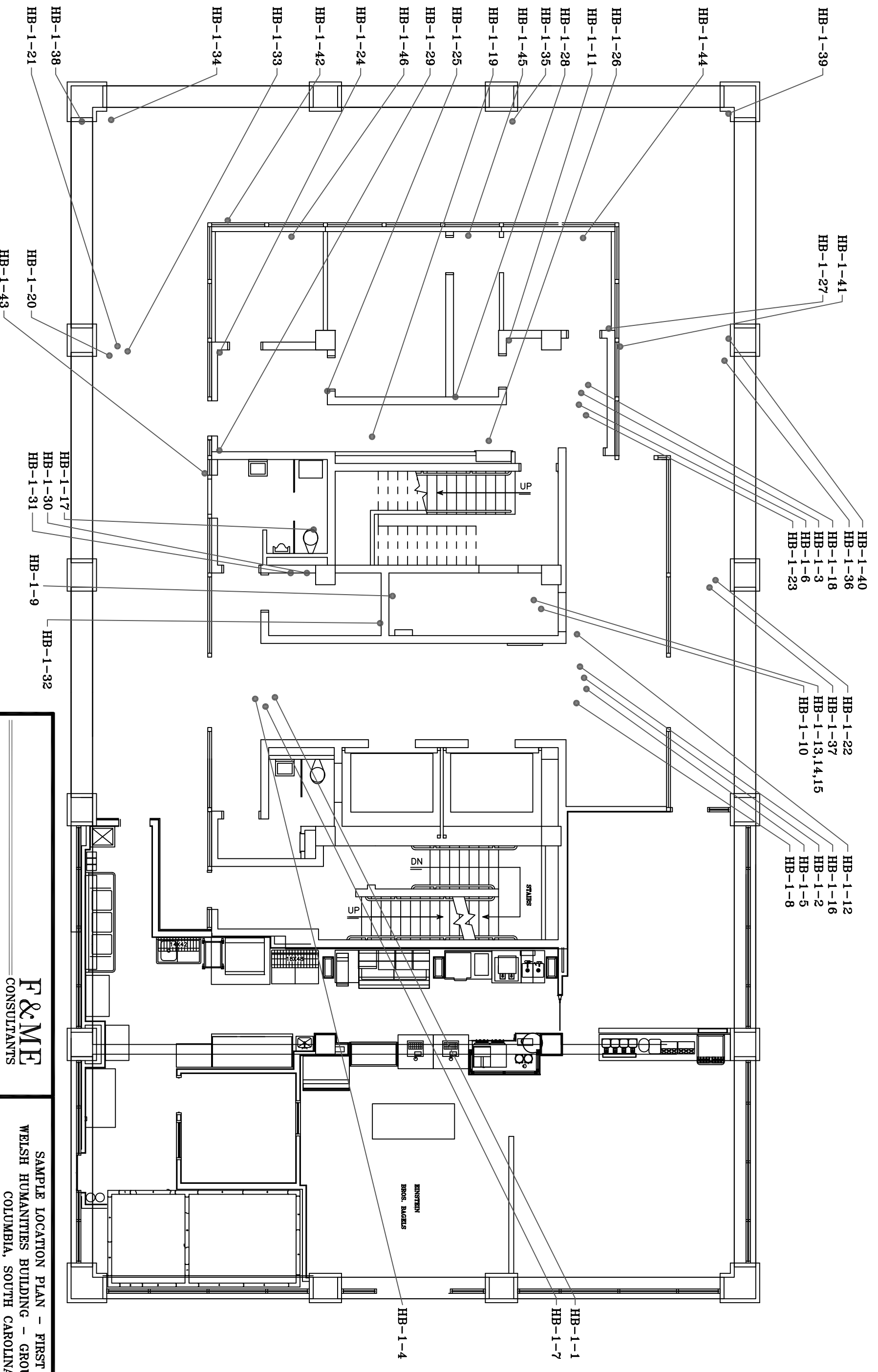
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F&ME
CONSULTANTS

SITE VICINITY MAP
John Welsh Humanities Office Building
Columbia, South Carolina

University of South Carolina

Drawn By:	N/A	Scale:	N.T.S.
Checked By:	N/A	Project:	E5200.050
Approved By:	N/A	Figure:	1

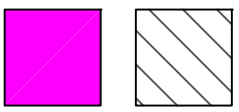


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SAMPLE LOCATON PLAN - FIRST FLOOR
WELSH HUMANITIES BUILDING - GROUND FLOOR
COLUMBIA, SOUTH CAROLINA

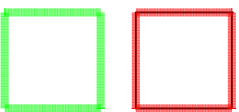
UNIVERSITY OF SOUTH CAROLINA

DRAWN BY:	MSM	SCALE:	1" = 8'
CHECKED BY:	JLS	PROJECT:	E5200.05
APPROVED BY:	GME	FIGURE:	2



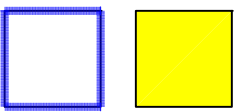
HA-1 - SPRAY APPLIED TEXTURED CEILING MATERIAL

HA-2 - BLACK HVAC DUCT MASTIC



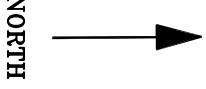
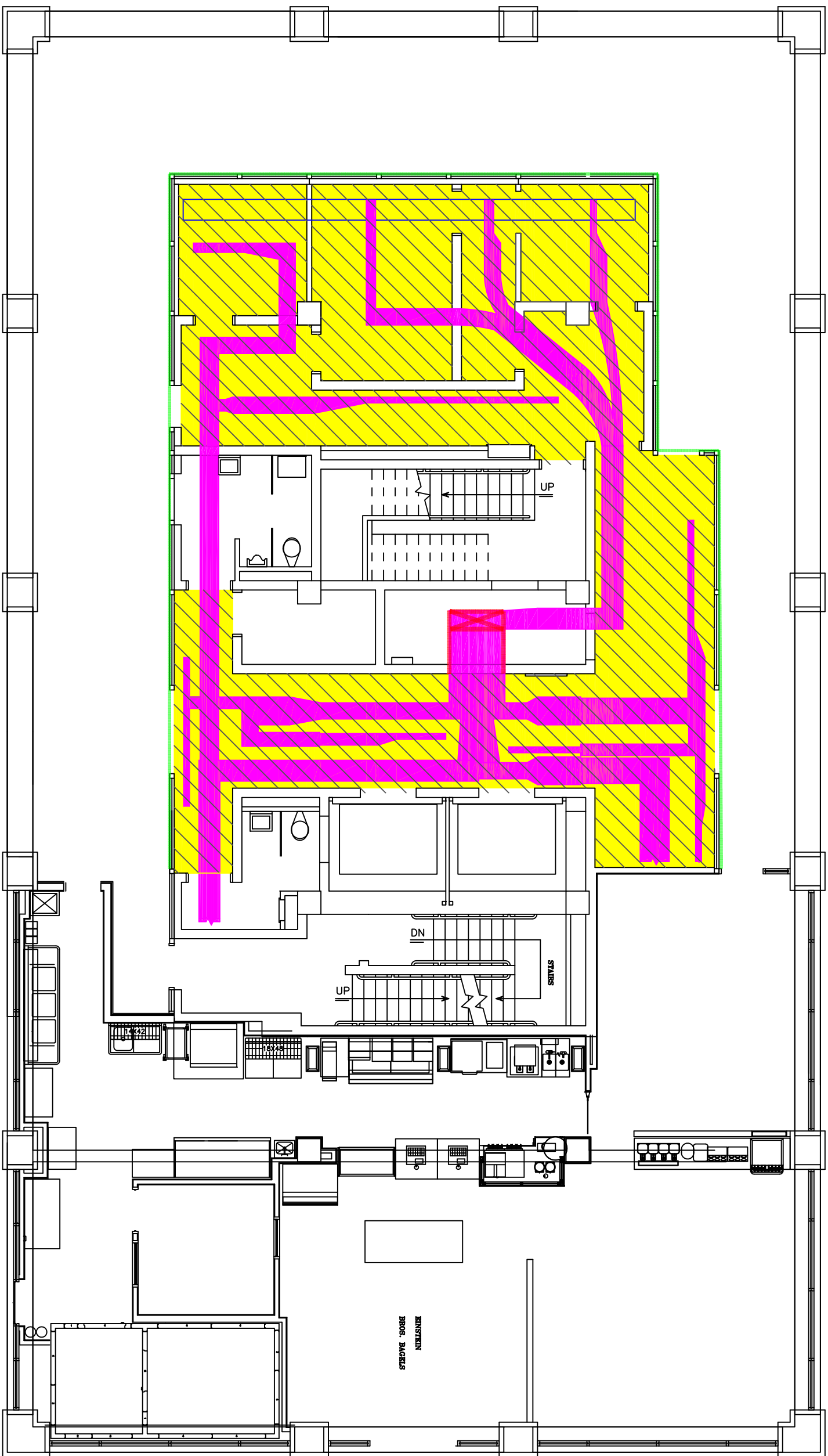
HA-3 - RED HVAC CAULK

HA-4 - WINDOW GLAZING



HA-5 - BLACK PIPE MASTIC

HA-6 - MUDDERED ELBOWS IN BASEMENT ASSOCIATED WITH GROUND FLOOR HVAC



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HOMOGENEOUS AREA PLAN - FIRST FLOOR
WELSH HUMANTITIES BUILDING - GROUND FLOOR
COLUMBIA, SOUTH CAROLINA

DRAWN BY: MSM
CHECKED BY: JLS
APPROVED BY: GME

SCALE: 1" = 8'
PROJECT: E5200.05
FIGURE: 3

APPENDIX B

Summary of Samples (Table I)

Summary of Asbestos Containing Materials (Table II)

Summary of Inspection

Physical Assessment Data Sheets

Bulk Asbestos Analytical Reports (F&ME)

Bulk Asbestos Analytical Reports (Provided by USC)

TABLE I. SUMMARY OF SAMPLES

Sample ID	Sample Description	Floor
HB-1-1	Black HVAC Mastic	Ground
HB-1-2	Black HVAC Mastic	Ground
HB-1-3	Black HVAC Mastic	Ground
HB-1-4	HVAC Duct Wrap	Ground
HB-1-5	HVAC Duct Wrap	Ground
HB-1-6	HVAC Duct Wrap	Ground
HB-1-7	Pipe Wrap with Black Mastic	Ground
HB-1-8	Pipe Wrap with Black Mastic	Ground
HB-1-9	Pipe Wrap with Black Mastic	Ground
HB-1-10	Overspray on HVAC Duct	2 nd Floor
HB-1-11	Overspray on Light Fixtures	Ground
HB-1-12	Overspray on Light Fixtures	Ground
HB-1-13	Red HVAC Caulking	2 nd Floor
HB-1-14	Red HVAC Caulking	2 nd Floor
HB-1-15	Red HVAC Caulking	2 nd Floor
HB-1-16	Plaster, Brown Coat	Ground
HB-1-17	Plaster, Skim and Brown Coat	Ground
HB-1-18	Plaster, Brown Coat	Ground
HB-1-19	Plaster, Skim and Brown Coat	Ground
HB-1-20	Plaster, Skim and Brown Coat	Ground
HB-1-21	Plaster, Skim and Brown Coat	Ground
HB-1-22	Plaster, Skim Coat	Ground
HB-1-23	Black Pipe Mastic (Joints/Elbows)	Ground
HB-1-24	Baseboard Adhesive	Ground
HB-1-25	Baseboard Adhesive	Ground
HB-1-26	Baseboard Adhesive	Ground
HB-1-27	Drywall/Joint Compound	Ground
HB-1-28	Drywall/Joint Compound	Ground
HB-1-29	Drywall/Joint Compound	Ground
HB-1-30	Brown Fire Stop	Ground
HB-1-31	Brown Fire Stop	Ground
HB-1-32	Brown Fire Stop	Ground
HB-1-33	Lite Ceiling Texture (Exterior Breezeway)	Ground
HB-1-34	Lite Ceiling Texture (Exterior Breezeway)	Ground
HB-1-35	Lite Ceiling Texture (Exterior Breezeway)	Ground
HB-1-36	Lite Ceiling Texture (Exterior Breezeway)	Ground
HB-1-37	Lite Ceiling Texture (Exterior Breezeway)	Ground
HB-1-38	Brown Expansion Joint Caulking	Ground
HB-1-39	Brown Expansion Joint Caulking	Ground
HB-1-40	Brown Expansion Joint Caulking	Ground
HB-1-41	Window Glazing	Ground
HB-1-42	Window Glazing	Ground
HB-1-43	Window Glazing	Ground

TABLE I

TABLE I. SUMMARY OF SAMPLES

Sample ID	Sample Description	Floor
HB-1-44	Mudded Elbows	Basement
HB-1-45	Mudded Elbows	Basement
HB-1-46	Mudded Elbows	Basement

TABLE I

SUMMARY OF INSPECTION

The following tables summarize the physical assessment data, sampling and assessment results.

As exhibited on these tables, coding is used to abbreviate the asbestos containing materials' (ACM) locations, characteristics and results. These codes are as follows:

TYPES OF ACM:

Misc. = Miscellaneous

Sur. = Surfacing

TSI = Thermal System Insulation

ACM LOCATIONS:

Homogeneous areas = Indicated by Roman Numerals, Room Number or Area Designation

Functional Space No.: Functional Space Type:

1.	H	=	Hallways
2.	OC	=	Offices/Classrooms
3.	AC	=	Above Ceilings
4.	CH	=	Chase
5.	EB	=	Exterior Breezeways
6.	B	=	Basement

ACM CHARACTERISTICS:

F = Friable

NF = Non-Friable

ASSESSMENT RESULTS:

(Refer to Physical Assessment Data)

POTENTIAL FOR DISTURBANCE:

(Refer to Physical Assessment Data)

PHYSICAL ASSESSMENT CATEGORIES:

1. Damaged or significantly damaged friable thermal system insulation ACM.
2. Damaged friable surfacing ACM.
3. Significantly damaged friable surfacing ACM.
4. Damaged or significantly damaged friable miscellaneous ACM.
5. ACM with potential for significant damage.
6. ACM with potential for damage.
7. Any remaining friable ACM or friable suspect ACM.
8. Non-friable ACM.

CLASSIFICATION FOR HAZARD POTENTIAL:

(Tabular Display)

<u>Hazard Rank</u>	<u>ACM Condition</u>	<u>ACM Disturbance Potential</u>
7	Significantly Damaged	Any
6	Damaged	Potential for Significant Damage
5	Damaged	Potential for Damage
4	Damaged	Low
3	Good	Potential for Significant Damage
2	Good	Potential for Damage
1	Good	Low

PHYSICAL ASSESSMENT DATA SHEET

Building: Welsh Humanities Office Building – Ground Floor

Functional Space No: 1,2 **Type:** H,OC **Location:** (See Homogeneous Area Plan)

Type of Suspect Material: _____ **TSI** X **Surfacing** _____ **Misc.**

Description: HA-1, Spray Applied Textured Ceiling Material

Approximate Amount of Material (SF or LF): ~1,190 S.F.

Condition:

Percent Damage: X >0% _____ <10% _____ >10% _____ <25% _____ >25%

Extent of Damage : _____ Localized X Distributed

Type of Damage: X Deterioration _____ Water _____ Physical

Description:

White spray applied textured ceiling material.

Overall Condition Rating: Sig. Damaged _____ Damaged _____ Good X

Potential for Disturbance:

	High	Moderate	Low	Friable ACM
Frequency of Potential Contact:	_____	<u>X</u>	_____	<u>X</u>
Influence of Vibration	_____	_____	<u>X</u>	<u>X</u>
Frequency of Air Erosion	_____	_____	<u>X</u>	<u>X</u>
Potential of Water Erosion	_____	_____	<u>X</u>	<u>X</u>

Overall Potential Disturbance Rating:

Potential for Sig. Damage _____ Potential for Damage 6 Low Potential for Damage _____

Overall Hazard Rank #:

Sig. Damaged _____ Pot. Damage _____ Sig. Potential Damage 2 Low Pot. Damage _____

Comments: Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility. Impending renovation activities may impact this material.

Signed: Mike Minay **Date:** 01/30/12

PHYSICAL ASSESSMENT DATA SHEET

Building: Welsh Humanities Office Building – Ground Floor

Functional Space Number: 1,2,3 **Type:** H,OC,AC **Location:** (See Homogeneous Area Plan)

Type of Suspect Material: TSI **Surfacing** X **Misc.**

Description: HA-2, Black Mastic on HVAC Ducts

Approximate Amount of Material (SF or LF): ~300 L.F.

Condition:

Percent Damage: X >0% <10% >10% <25% >25%

Extent of Damage : Localized X Distributed

Type of Damage: X Deterioration Water Physical

Description:

Black mastic on seams of original HVAC duct insulation

Overall Condition Rating: Sig. Damaged Damaged Good X

Potential for Disturbance:

	High	Moderate	Low	Friable ACM
Frequency of Potential Contact:	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Influence of Vibration	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Frequency of Air Erosion	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Potential of Water Erosion	<u> </u>	<u> </u>	<u>X</u>	<u> </u>

Overall Potential Disturbance Rating:

Potential for Sig. Damage Potential for Damage Low Potential for Damage
8

Overall Hazard Rank #:

Sig. Damaged Pot. Sig. Damage Potential Damage Low Pot. Damage
1

Comments: Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility. Impending renovation activities may impact this material.

Signed: Mike Minay **Date:** 01/30/12

PHYSICAL ASSESSMENT DATA SHEET

Building: Welsh Humanities Office Building – Ground Floor

Functional Space No: 5 **Type:** EB **Location:** (See Homogeneous Area Plan)

Type of Suspect

Material: TSI **Surfacing** X **Misc.**

Description: HA-4, Exterior Window Glazing

Approximate Amount of Material (SF or LF): ~145 L.F.

Condition:

Percent Damage: X >0% <10% >10% <25% >25%

Extent of Damage : Localized X Distributed

Type of Damage: X Deterioration X Water Physical

Description:

Exterior window glazing located at base of window casing.

Overall Condition Rating: Sig. Damaged Damaged Good X

Potential for Disturbance:

	High	Moderate	Low	Friable ACM
Frequency of Potential Contact:	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Influence of Vibration	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Frequency of Air Erosion	<u> </u>	<u> </u>	<u>X</u>	<u> </u>
Potential of Water Erosion	<u> </u>	<u> </u>	<u>X</u>	<u> </u>

Overall Potential Disturbance Rating:

Potential for Sig. Damage	Potential for Damage	Low Potential for Damage
<u> </u>	<u> </u>	<u>8</u>

Overall Hazard Rank #:

Sig. Damaged	Pot. Sig. Damage	Potential Damage	Low Pot. Damage
<u> </u>	<u> </u>	<u> </u>	<u>1</u>

Comments: Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility. Impending renovation activities may impact this material.

Signed: Mike Minay **Date:** 01/30/12

PHYSICAL ASSESSMENT DATA SHEET

Building: Welsh Humanities Office Building – Ground Floor

Functional Space No: 3 **Type:** AC **Location:** (See Homogeneous Area Plan)

Type of Suspect

Material: _____ **TSI** _____ **Surfacing** X **Misc.** _____

Description: HA-5, Black Pipe Mastic

Approximate Amount of Material (SF or LF): Unknown

Condition:

Percent Damage: X >0% _____ <10% _____ >10% _____ <25% _____ >25%

Extent of Damage : _____ Localized _____ X Distributed

Type of Damage: X Deterioration _____ Water _____ Physical

Description:

Black mastic on joints and elbows on fiberglass pipe insulation.

Overall Condition Rating: Sig. Damaged _____ Damaged _____ Good X

Potential for Disturbance:

	High	Moderate	Low	Friable ACM
Frequency of Potential Contact:	_____	_____	<u>X</u>	_____
Influence of Vibration	_____	_____	<u>X</u>	_____
Frequency of Air Erosion	_____	_____	<u>X</u>	_____
Potential of Water Erosion	_____	_____	<u>X</u>	_____

Overall Potential Disturbance Rating:

Potential for Sig. Damage _____ Potential for Damage _____ Low Potential for Damage 8

Overall Hazard Rank #:

Sig. Damaged _____ Pot. Sig. Damage _____ Potential Damage _____ Low Pot. Damage 1

Comments: Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility. Impending renovation activities may impact this material.

Signed: Mike Minay Date: 01/30/12

PHYSICAL ASSESSMENT DATA SHEET

Building: Welsh Humanities Office Building – Ground Floor

Functional Space No: 6 **Type:** B **Location:** (See Homogeneous Area Plan)

Type of Suspect Material: X **TSI** _____ **Surfacing** _____ **Misc.** _____

Description: HA-6, Mudded Elbows in Basement Associated with Ground Floor Radiant Heat System

Approximate Amount of Material (SF or LF): ~6 Elbows

Condition:

Percent Damage: X >0% _____ <10% _____ >10% _____ <25% _____ >25%

Extent of Damage : _____ Localized _____ X Distributed

Type of Damage: X Deterioration _____ X Water _____ Physical

Description:

Mudded elbows located in basement and are associated with the ground floor radiant heating system. Elbows are wrapped with canvas and are painted orange.

Overall Condition Rating: Sig. Damaged _____ Damaged _____ Good X

Potential for Disturbance:

	High	Moderate	Low	Friable ACM
Frequency of Potential Contact:	_____	_____	<u>X</u>	<u>X</u>
Influence of Vibration	_____	_____	<u>X</u>	<u>X</u>
Frequency of Air Erosion	_____	_____	<u>X</u>	<u>X</u>
Potential of Water Erosion	_____	_____	<u>X</u>	<u>X</u>

Overall Potential Disturbance Rating:

Potential for Sig. Damage _____ Potential for Damage _____ Low Potential for Damage 7

Overall Hazard Rank #:

Sig. Damaged _____ Pot. Sig. Damage _____ Potential Damage _____ Low Pot. Damage 1

Comments: Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility. Impending renovation activities may impact this material.

Signed: Mike Minay **Date:** 01/30/12



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Customer PO: E5200.05
Received: 01/20/12 10:00 AM
EMSL Order: 021200319

Fax: (803) 254-4542 Phone: (803) 254-4540
Project: **E5200.05 Humanities Office Building (HB-1) Limited**
Asbestos Inspection

EMSL Proj:
Analysis Date: 1/23/2012

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-1 <i>021200319-0001</i>	HVAC Duct Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose	90% Non-fibrous (other)	10% Chrysotile
HB-1-2 <i>021200319-0002</i>	HVAC Duct Mastic				Stop Positive (Not Analyzed)
HB-1-4 <i>021200319-0003</i>	HVAC Duct Wrap	Brown/Silver Fibrous Heterogeneous	50% Cellulose 5% Glass	45% Non-fibrous (other)	None Detected
HB-1-5 <i>021200319-0004</i>	HVAC Duct Wrap	Brown/Silver Fibrous Heterogeneous	40% Cellulose 5% Glass	55% Non-fibrous (other)	None Detected
HB-1-6 <i>021200319-0005</i>	HVAC Duct Wrap	Brown/Silver/Yellow Fibrous Heterogeneous	45% Cellulose 15% Glass	40% Non-fibrous (other)	None Detected
HB-1-7-Pipe wrap <i>021200319-0006</i>	Pipe Wrap & Mastic	White/Silver Fibrous Heterogeneous	40% Cellulose 5% Glass	55% Non-fibrous (other)	None Detected

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Analyst(s)

Stephen Bennett (32)
Scott Combs (11)

Stephen Bennett, Laboratory Manager
or other approved signatory

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-7-Mastic <i>021200319-0006A</i>	Pipe Wrap & Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose 3% Glass	97% Non-fibrous (other)	None Detected
HB-1-8-Pipe wrap <i>021200319-0007</i>	Pipe Wrap & Mastic	Silver/Blue/Beige Fibrous Heterogeneous	15% Cellulose 30% Glass	55% Non-fibrous (other)	None Detected
HB-1-8-Mastic <i>021200319-0007A</i>	Pipe Wrap & Mastic	Black Non-Fibrous Heterogeneous	<1% Cellulose 3% Glass	97% Non-fibrous (other)	None Detected
HB-1-10 <i>021200319-0008</i>	Overspray on HVAC Duct	Gray Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-11 <i>021200319-0009</i>	Overspray on Lights	White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-12 <i>021200319-0010</i>	Overspray on Lights	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-13 <i>021200319-0011</i>	HVAC Mastic	Red Non-Fibrous Homogeneous	<1% Cellulose	97% Non-fibrous (other)	3% Chrysotile
HB-1-14 <i>021200319-0012</i>	HVAC Mastic				Stop Positive (Not Analyzed)
HB-1-16 <i>021200319-0013</i>	Plaster & Brown Coat	Beige Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-17-Brown Coat <i>021200319-0014</i>	Plaster Skim & Brown Coat	Beige Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-17-Skim Coat <i>021200319-0014A</i>	Plaster Skim & Brown Coat	White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-18 <i>021200319-0015</i>	Plaster Brown Coat	Gray/Tan Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-19-Brown Coat <i>021200319-0016</i>	Plaster Skim & Brown Coat	Beige Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-19-Skim Coat <i>021200319-0016A</i>	Plaster Skim & Brown Coat	Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-20 <i>021200319-0017</i>	Plaster Skim & Brown Coat	Gray/Tan/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-21 <i>021200319-0018</i>	Plaster Skim Coat	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose 2% Glass	98% Non-fibrous (other)	None Detected
HB-1-22 <i>021200319-0019</i>	Plaster Skim Coat	Gray/Tan/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-24 <i>021200319-0020</i>	Baseboard Adhesive	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-25 <i>021200319-0021</i>	Baseboard Adhesive	Beige Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-27-Joint Compound <i>021200319-0022</i>	Drywall/Joint Compound	White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-27-Drywall <i>021200319-0022A</i>	Drywall/Joint Compound	Grayish Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
HB-1-28-Joint Compound <i>021200319-0023</i>	Drywall/Joint Compound	White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-28-Drywall <i>021200319-0023A</i>	Drywall/Joint Compound	Grayish Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
HB-1-29-Drywall <i>021200319-0024</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected

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600/M4-82-020 Method(s) using Polarized Light Microscopy**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-29-Tape <i>021200319-0024A</i>	Drywall/Joint Compound	Tan Fibrous Heterogeneous	99% Cellulose	1% Non-fibrous (other)	None Detected
HB-1-29-Joint Compound <i>021200319-0024B</i>	Drywall/Joint Compound	White/Grayish Non-Fibrous Heterogeneous	1% Cellulose	99% Non-fibrous (other)	None Detected
HB-1-30 <i>021200319-0025</i>	Fire Stop	Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
HB-1-31 <i>021200319-0026</i>	Fire Stop	Brown Non-Fibrous Heterogeneous	<1% Cellulose <1% Synthetic	100% Non-fibrous (other)	None Detected
HB-1-32 <i>021200319-0027</i>	Fire Stop	Tan/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-33 <i>021200319-0028</i>	Ceiling Texture	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

Initial report from 01/23/2012 08:40:51

Analyst(s) _____

Stephen Bennett (32)

Scott Combs (11)

Stephen Bennett, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



EMSL Analytical, Inc.
 706 Gralin Street, Kernersville, NC 27284
 Phone: (336) 992-1025 Fax: (336) 992-4175 Email: greensborolab@emsl.com

Attn: **Glynn Ellen**
F & ME Consultants
3112 Divine Street

Columbia, SC 29205

Customer ID: FMEC62
 Customer PO: E5200.05
 Received: 01/20/12 10:00 AM
 EMSL Order: 021200319

Fax: (803) 254-4542 Phone: (803) 254-4540
 Project: **E5200.05 Humanities Office Building (HB-1) Limited**
Asbestos Inspection

EMSL Proj:
 Analysis Date: 1/23/2012


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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-34 <i>021200319-0029</i>	Ceiling Texture	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-35 <i>021200319-0030</i>	Ceiling Texture	Gray/Tan/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-36 <i>021200319-0031</i>	Ceiling Texture	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-37 <i>021200319-0032</i>	Ceiling Texture	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
HB-1-38 <i>021200319-0033</i>	Expansion Joint Caulk	Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
HB-1-39 <i>021200319-0034</i>	Expansion Joint Caulk	Brown Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Initial report from 01/23/2012 08:40:51

Analyst(s)

 Stephen Bennett (32)
 Scott Combs (11)



 Stephen Bennett, Laboratory Manager
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



EMSL Analytical, Inc.
706 Gralin Street, Kernersville, NC 27284

Phone: (336) 992-1025 Fax: (336) 992-4175 Email: greensborolab@emsl.com

Attn: **Glynn Ellen**
F & ME Consultants
3112 Divine Street

Columbia, SC 29205

Fax: (803) 254-4542 Phone: (803) 254-4540

Project: **E5200.05 Humanities Office Building (HB-1) Limited Asbestos Inspection**

Customer ID: FMEC62
Customer PO: E5200.05
Received: 01/20/12 10:00 AM
EMSL Order: 021200319

EMSL Proj:
Analysis Date: 1/23/2012

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
HB-1-41 <i>021200319-0035</i>	Window Glazing	Brown Fibrous Heterogeneous	<1% Cellulose	95% Non-fibrous (other)	5% Chrysotile
HB-1-42 <i>021200319-0036</i>	Window Glazing				Stop Positive (Not Analyzed)
HB-1-44 <i>021200319-0037</i>	Mudded Elbows	Gray Fibrous Heterogeneous	8% Cellulose 10% Min. Wool	77% Non-fibrous (other)	5% Chrysotile
HB-1-45 <i>021200319-0038</i>	Mudded Elbows				Stop Positive (Not Analyzed)
HB-1-46 <i>021200319-0039</i>	Mudded Elbows				Stop Positive (Not Analyzed)
HB-1-23 <i>021200319-0040</i>	Black Pipe Mastic	Black Fibrous Heterogeneous	<1% Cellulose	90% Non-fibrous (other)	10% Chrysotile

Initial report from 01/23/2012 08:40:51

Analyst(s)

Stephen Bennett (32)
Scott Combs (11)

Stephen Bennett, Laboratory Manager
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Kernersville, NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



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Attn: **Glynn Ellen**
F & ME Consultants
3112 Divine Street

Columbia, SC 29205

Fax: (803) 254-4542 Phone: (803) 254-4540

Project: **E5200.05 Humanities Office Building (HB-1) Limited**
Asbestos Inspection

Customer ID: FMEC62
 Customer PO: E5200.05
 Received: 01/20/12 10:00 AM
 EMSL Order: 021200319

EMSL Proj:
 Analysis Date: 1/24/2012

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

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
HB-1-9 - Pipe wrap 021200319-0041		Gray/Tan Fibrous Heterogeneous	100	None	No Asbestos Detected
HB-1-9 - Mastic 021200319-0042		Black Fibrous Heterogeneous	100	None	No Asbestos Detected
HB-1-40 021200319-0043		Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

Initial report from 01/23/2012 08:40:51

Analyst(s) _____

Scott Combs (3)

Stephen Bennett, Laboratory Manager
 or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
 Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Chain of Custody

0319

EMSL Analytical, Inc.
706 Gralin Street
Kernersville, NC 27284

Asbestos Lab Services

Phone: (336) 992-1025
Fax: (336) 992-4175
<http://www.emsl.com>

Please print all information legibly.

F&ME Consultants	F&ME Consultants
3112 Devine Street	P.O. Box 5855
Columbia, South Carolina	Columbia, South Carolina
29205	29250
USA	USA
Glynn Ellen	Jim Kelleher
803 254-4540	803 777-1208
803 254-4542	803 777-1028
glynn@fmecon.com	jkelleher@fmecon.com
Jason McDonald	E5200.05
E5200.05 Humanities Office Building (HB-1) Limited Asbestos Inspection	

MATRIX			TURNAROUND			
<input type="checkbox"/> Air	<input type="checkbox"/> Soil	<input type="checkbox"/> Micro-Vac	<input type="checkbox"/> 3 Hours	<input type="checkbox"/> 6 Hours	<input type="checkbox"/> Same Day or 12 Hours*	<input checked="" type="checkbox"/> 24 Hours (1day)
<input checked="" type="checkbox"/> Bulk	<input type="checkbox"/> Drinking Water		<input checked="" type="checkbox"/> 48 Hours (2 days)	<input type="checkbox"/> 72 Hours (3 days)	<input type="checkbox"/> 96 Hours (4 days)	<input type="checkbox"/> 120 Hours (5 days)
<input type="checkbox"/> Wipe	<input type="checkbox"/> Wastewater		<input type="checkbox"/> 144+ hours (6-10 days)			

TEM AIR, 3 hours, 6 hours, Please call ahead to schedule. There is a premium charge for 3-hour tat, please call 1-800-220-3675 for price prior to sending samples. You will be asked to sign an authorization form for this service.

*12 hours (must arrive by 11:00a.m. Mon -Fri.), Please Refer to Price Quote

PCM - Air	TEM Air	TEM WATER
<input type="checkbox"/> NIOSH 7400(A) Issue 2: August 1994	<input type="checkbox"/> AHERA 40 CFR, Part 763 Subpart E	<input type="checkbox"/> EPA 100.1
<input type="checkbox"/> OSHA w/TWA	<input type="checkbox"/> NIOSH 7402	<input type="checkbox"/> EPA 100.2
<input type="checkbox"/> Other:	<input type="checkbox"/> EPA Level II	<input type="checkbox"/> NYS 198.2
PLM - Bulk	TEM BULK	TEM Microvac/Wipe
<input checked="" type="checkbox"/> EPA 600/R-93/116	<input type="checkbox"/> Drop Mount (Qualitative)	<input type="checkbox"/> ASTM D 5755-95 (quantative method)
<input type="checkbox"/> EPA Point Count	<input type="checkbox"/> Chatfield SOP - 1988-02	<input type="checkbox"/> Wipe Qualitative
<input type="checkbox"/> NY Stratified Point Count	<input checked="" type="checkbox"/> TEM NOB (Gravimetric) NYS 198.4	
<input type="checkbox"/> PLM NOB (Gravimetric) NYS 198.1	<input type="checkbox"/> EMSL Standard Addition:	XRD
<input type="checkbox"/> NIOSH 9002:		<input type="checkbox"/> Asbestos
<input type="checkbox"/> EMSL Standard Addition:	PLM Soil	<input type="checkbox"/> Silica NIOSH 7500
SEM Air or Bulk	<input type="checkbox"/> EPA Protocol Qualitative	
<input type="checkbox"/> Qualitative	<input type="checkbox"/> EPA Protocol Quantitative	OTHER
<input type="checkbox"/> Quantitative	<input type="checkbox"/> EMSL MSD 9000 Method fibers/gram	<input type="checkbox"/>

0319

Chain of Custody

EMSL Analytical, Inc.
706 Gralin Street
Kernersville, NC 27284

Asbestos Lab Services

Phone: (336) 992-1025
Fax: (336) 992-4175
<http://www.emsl.com>

Please print all information legibly.

Client Sample # HB-1-1 to HB-1-46

Total Samples #: 46

Relinquished: Mike Mincey *Mike Mincey* Date: 01/19/12

Time: 17:00

Received: MV Date: 1-20-12

Time: 10:00

Relinquished: _____ Date: _____

Time: _____

Received: _____ Date: _____

Time: _____

SAMPLE NUMBER	SAMPLE DESCRIPTION/LOCATION	VOLUME (if applicable)
NOTE: FIRST POSITIVE STOP PROTOCOL. ALSO, FOR SAMPLES DENOTED WITH AN ASTERICK (*), IF THE FIRST TWO SAMPLES' RESULTS ARE NEGATIVE, RUN LAST SAMPLE AS TEM BULK FOR NEGATIVE CONFIRMATION. SOUTH CAROLINA GUIDELINES.		
*HB-1-1	Black HVAC Duct Mastic	
*HB-1-2	Black HVAC Duct Mastic	
*HB-1-3	Black HVAC Duct Mastic	
HB-1-4	HVAC Duct Wrap	
HB-1-5	HVAC Duct Wrap	
HB-1-6	HVAC Duct Wrap	
*HB-1-7	Pipe Wrap and Black Mastic	
*HB-1-8	Pipe Wrap and Black Mastic	
*HB-1-9	Pipe Wrap and Black Mastic	
HB-1-10	Overspray on HVAC Duct	
HB-1-11	Overspray on Lights	
HB-1-12	Overspray on Lights	
*HB-1-13	Red HVAC Mastic	
*HB-1-14	Red HVAC Mastic	
*HB-1-15	Red HVAC Mastic	
HB-1-16	Plaster Brown Coat	
HB-1-17	Plaster Skim and Brown Coat	
HB-1-18	Plaster Brown Coat	
HB-1-19	Plaster Skim and Brown Coat Only	
HB-1-20	Plaster Skim and Brown Coat Only	
HB-1-21	Plaster Skim Coat Only	
HB-1-22	Plaster Skim Coat Only	



EMSL Analytical, Inc.
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 Phone: (336) 992-1025 Fax: (336) 992-4175 Email: greensborolab@emsl.com

Attn: **Ed Pitts**
University of South Carolina
743 Greene Street
Columbia, SC 29208

Customer ID: UNSC62
 Customer PO:
 Received: 08/13/10 10:45 AM
 EMSL Order: 021005341
 EMSL Proj:
 Analysis Date: 8/13/2010

Fax: (803) 777-7334 Phone: (803) 777-7000
 Project: #54 Humanities Cafe


Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1 021005341-0001	Ceiling	Beige Non-Fibrous Heterogeneous		98% Non-fibrous (other)	2% Chrysotile
2 021005341-0002	Ceiling	Beige Fibrous Heterogeneous		97% Non-fibrous (other)	3% Chrysotile
3 021005341-0003	Ceiling	Tan/Grayish Non-Fibrous Heterogeneous	1% Fibrous (other) <1% Cellulose	97% Non-fibrous (other)	2% Chrysotile
4 021005341-0004	Ceiling	Beige/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

Initial report from 08/13/2010 13:19:25

Analyst(s)

 Kristie Elliott (3)
 Scott Combs (1)



 Stephen Bennett, Laboratory Manager
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. 706 Gralin Street, Kernersville NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321

5341



107 Haddon Avenue, Westmont, New Jersey 08108

1-800-220-3675

http://www.emsl.com

EMSL ANALYTICAL, Inc. CHAIN OF CUSTODY

EMSL Rep: Univ of South Carolina

Third Party Billing requires written authorization from third party

Your Name: attn: J.R. Pate

EMSL-Bill to: [Signature]

Company: _____

Street: _____

Street: _____

Box #: Dumont, New Jersey

Box #: _____

City/State: 913 - 0 291 Zip

City/State: _____ Zip _____

Phone Results to: [Signature]

Fax Results to: _____

Name: 317 - 0 217

Name: _____

Telephone #: _____

Fax #: _____

Project Name/Number: # 54 Humana Caf

Purchase Order #: _____

TURNAROUND TIME									
<input checked="" type="checkbox"/> 2 Hours	<input type="checkbox"/> 6 Hours	<input type="checkbox"/> 12 Hours	<input type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 72 Hours	<input type="checkbox"/> 4 Days	<input type="checkbox"/> 5 Days	<input type="checkbox"/> 6-10 Days	

SAMPLE MATRIX									
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Bulk	<input type="checkbox"/> Soil	<input type="checkbox"/> Wipe	<input type="checkbox"/> Micro-Vac	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Chips	<input type="checkbox"/> Other	

ASBESTOS ANALYSIS

PCM - Air

NIOSH 7400 (A) Issue 2: August 1994

OSHA w/TWA

TEM AIR

AHERA 40 CFR, Part 763 Subpart E

NIOSH 7402 Issue 2

EPA Level II

PLM - Bulk

EPA 600/R-93/116

NY Stratified Point Count

California Air Resource Board (CARB) 435

NIOSH 9002

PLM NOB (Gravimetric) NYS 198.1

EPA Point Count (400 Points)

EPA Point Count (1,000 Points)

Standard Addition Point Count

SOILS

EPA Protocol Quantitative

EPA Protocol Quantitative

EMSL MSD 9000 Method fibers/gram

Superfund EPA 540-R097-023 (dust generation)

TEM BULK

Drop Mount (Qualitative)

Chatfield SOP-1988-02

TEM NOB (Gravimetric) NY 198.4

TEM MICROVAC

ASTM D 5755-95 (Quantitative)

TEM WIPE

ASTM D-6430-99

Qualitative

TEM WATER

EPA 160.1

EPA 160.2

NYS 198.2

OTHER: _____

LEAD ANALYSIS

Flame Atomic Absorption

Wipe, SW846-7420 ASTM non ASTM

Soil, SW846-7420

Air, NIOSH 7082

Chips, SW846-7420 or AOAC 5.009 (974.02)

Wastewater, SW 846-7420

TCLP LEAD SW846-1311/7420

Graphite Furnace Atomic Absorption

Air, NIOSH 7105

Wastewater, SW846-7421

Soil, SW846-7421

Drinking Water, EPA 239.2

ICP - Inductively Coupled Plasma

Wipe, SW846-6010 ASTM non ASTM

Soil, SW846-6010

Air, NIOSH 7309

MATERIALS ANALYSIS

Full Particle Identification

Optical Particle Identification

Dust Mixes and Insect Fragments

Particle Size & Distribution

Product Comparison

Paint Characterization

Failure Analysis

Corrosion Analysis

Glove Box Containment Study

Petrographic Examination of Concrete

Portland Cement in Workplace Atmospheres (OSHA ID-143)

Man Made Vitrous Fibers - MMVF's

Synthetic Fiber Identification

Other: _____

MICROBIAL ANALYSIS

Air Samples

Mold & Fungi by Air O Cell

Mold & Fungi by Agar Plate count & id

Bacterial Count and Gram Stain

Bacterial Count and Identification

Water Samples

Total Coliforms, Fecal Coliforms

Escherichia Coli, Fecal Streptococcus

Legionella

Salmonella

Giardia and Cryptosporidium

Wipe and Bulk Samples

Mold & Fungi - Direct Examination

Mold & Fungi - (Culture follow up to direct examination if necessary)

Mold & Fungi - Culture (Count & ID)

Mold & Fungi - Culture (Count only)

Bacterial Count & Gram Stain

Bacterial Count & Identification (3 most prominent types)

Other: _____

IAQ ANALYSIS

Nuisance Dust (NIOSH 0500 & 3600)

Airborne Dust (PM10, TSP)

Silica Analysis by XRD NIOSH 7500

HVAC Efficiency

Carbon Black

Airborne Oil Mist

Other: _____

Client Sample # (S) _____ TOTAL SAMPLE # 4

Relinquished: _____ Date: _____ Time: _____

Received: mv Date: 8/13/10 Time: 10:45

Relinquished: _____ Date: _____ Time: _____

Received: _____ Date: _____ Time: _____



EMSL Analytical, Inc.
 706 Gralin Street, Kernersville, NC 27284
 Phone: (336) 992-1025 Fax: (336) 992-4175 Email: greensborolab@emsl.com

Attn: **Ed Pitts**
University of South Carolina
743 Greene Street
Columbia, SC 29208

Customer ID: UNSC62
 Customer PO:
 Received: 08/17/09 10:00 AM
 EMSL Order: 020904741

Fax: (803) 777-7334 Phone: (803) 777-3296
 Project: **54 Humanities Office Bld**

EMSL Proj:
 Analysis Date: 8/18/2009

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1 <i>020904741-0001</i>	Joint Compound	Gray Non-Fibrous Heterogeneous	1% Cellulose	97% Non-fibrous (other)	2% Chrysotile
2 <i>020904741-0002</i>	Sheetrock	Brown/Gray/White Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
3 <i>020904741-0003</i>	Joint Compound	Gray Non-Fibrous Heterogeneous	1% Cellulose	97% Non-fibrous (other)	2% Chrysotile
4 <i>020904741-0004</i>	Sheetrock	Brown/Gray/Beige Fibrous Heterogeneous	40% Cellulose <1% Glass	60% Non-fibrous (other)	None Detected
5 <i>020904741-0005</i>	Ceiling Tile	Gray/Tan Fibrous Heterogeneous	45% Cellulose 20% Min. Wool	35% Non-fibrous (other)	None Detected
6 <i>020904741-0006</i>	Popcorn Ceiling	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	<1% Chrysotile
7 <i>020904741-0007</i>	Joint Compound	Gray/Beige Non-Fibrous Heterogeneous	1% Cellulose	97% Non-fibrous (other)	2% Chrysotile

Analyst(s)

Scott Combs (25)

Stephen Bennett, Laboratory Manager
 or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.
 Samples analyzed by EMSL Analytical, Inc. Kernersville 706 Gralin Street, Kernersville NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



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Columbia, SC 29208

Customer ID: UNSC62
 Customer PO:
 Received: 08/17/09 10:00 AM
 EMSL Order: 020904741

Fax: (803) 777-7334 Phone: (803) 777-3296
 Project: **54 Humanities Office Bld**

EMSL Proj:
 Analysis Date: 8/18/2009

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
8 020904741-0008	Sheetrock	Brown/Gray/Tan Non-Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
9 020904741-0009	Joint Compound	Gray Non-Fibrous Heterogeneous	1% Cellulose	97% Non-fibrous (other)	2% Chrysotile
10 020904741-0010	Sheetrock	Brown/Gray/Beige Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
11 020904741-0011	Popcorn Ceiling	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
12 020904741-0012	Popcorn Ceiling	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	<1% Chrysotile
13 020904741-0013	Joint Compound	Gray/Beige Non-Fibrous Heterogeneous	<1% Cellulose	97% Non-fibrous (other)	3% Chrysotile
14 020904741-0014	Sheetrock	Brown/Gray/Tan Fibrous Heterogeneous	45% Cellulose	55% Non-fibrous (other)	None Detected

Analyst(s)

Scott Combs (25)

Stephen Bennett, Laboratory Manager
 or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.
 Samples analyzed by EMSL Analytical, Inc. Kernersville 706 Gralin Street, Kernersville NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



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Customer ID: UNSC62
 Customer PO:
 Received: 08/17/09 10:00 AM
 EMSL Order: 020904741

Fax: (803) 777-7334 Phone: (803) 777-3296
 Project: **54 Humanities Office Bld**

EMSL Proj:
 Analysis Date: 8/18/2009

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
15 <i>020904741-0015</i>	Popcorn Ceiling	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected
16 <i>020904741-0016</i>	Joint Compound	Gray Non-Fibrous Heterogeneous	1% Cellulose	96% Non-fibrous (other)	3% Chrysotile
17 <i>020904741-0017</i>	Sheetrock	Brown/Gray/Blue Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
18 <i>020904741-0018</i>	Ceiling Tile	Gray/Tan Fibrous Heterogeneous	45% Cellulose 20% Min. Wool	35% Non-fibrous (other)	None Detected
19 <i>020904741-0019</i>	Popcorn Ceiling	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	98% Non-fibrous (other)	2% Chrysotile
20 <i>020904741-0020</i>	Joint Compound	Tan/Beige Non-Fibrous Heterogeneous	1% Cellulose	97% Non-fibrous (other)	2% Chrysotile
21 <i>020904741-0021</i>	Sheetrock	Gray/Tan Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	None Detected

Analyst(s)

Scott Combs (25)

Stephen Bennett, Laboratory Manager
 or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.
 Samples analyzed by EMSL Analytical, Inc. Kernersville 706 Gralin Street, Kernersville NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321



EMSL Analytical, Inc.

706 Gralin Street, Kernersville, NC 27284

Phone: (336) 992-1025 Fax: (336) 992-4175 Email: greensborolab@emsl.com

Attn: **Ed Pitts**
University of South Carolina
743 Greene Street
Columbia, SC 29208

Customer ID: UNSC62
Customer PO:
Received: 08/17/09 10:00 AM
EMSL Order: 020904741

Fax: (803) 777-7334 Phone: (803) 777-3296

EMSL Proj:
Analysis Date: 8/18/2009

Project: **54 Humanities Office Bld**

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
22 <i>020904741-0022</i>	Ceiling Spray	Gray/White Non-Fibrous Heterogeneous	<1% Cellulose	98% Non-fibrous (other)	2% Chrysotile
23 <i>020904741-0023</i>	Joint Compound	Gray Non-Fibrous Heterogeneous	1% Cellulose	96% Non-fibrous (other)	3% Chrysotile
24 <i>020904741-0024</i>	Sheetrock	Gray/Tan Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (other)	None Detected
25 <i>020904741-0025</i>	Popcorn Ceiling	White/Grayish Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (other)	None Detected

Analyst(s)

Scott Combs (25)

Stephen Bennett, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Samples analyzed by EMSL Analytical, Inc. Kernersville 706 Gralin Street, Kernersville NC NVLAP Lab Code 102104-0, CA ELAP 2689, Virginia 3333-000228, West Virginia LT000321

4331



107 Haddon Avenue, Westmont, New Jersey 08108

1-800-220-3675

http://www.emsl.com

EMSL ANALYTICAL, Inc. CHAIN OF CUSTODY

EMSL Rep: Univ of South Carolina

Third Party Billing requires written authorization from third party

Your Name: attn: Bill Pitt

EMSL-Bill to:

Company: _____

Street: _____

Street: _____

Box #: Darwin Washington

Box #: _____

City/State: 919-2291 Zip

City/State: _____ Zip: _____

Phone Results to: Bill Pitt

Fax Results to:

Name: 317-0917

Name: _____

Telephone #: _____

Fax #: _____

Project Name/Number: Humanities Code

Purchase Order #: _____

TURNAROUND TIME									
<input type="checkbox"/> 3 Hours	<input type="checkbox"/> 6 Hours	<input type="checkbox"/> 12 Hours	<input checked="" type="checkbox"/> 24 Hours	<input type="checkbox"/> 48 Hours	<input type="checkbox"/> 72 Hours	<input type="checkbox"/> 4 Days	<input type="checkbox"/> 5 Days	<input type="checkbox"/> 6-10 Days	

SAMPLE MATRIX									
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Bulk	<input type="checkbox"/> Soil	<input type="checkbox"/> Wipe	<input type="checkbox"/> Micro-Vac	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Wastewater	<input type="checkbox"/> Chips	<input type="checkbox"/> Other	

ASBESTOS ANALYSIS

PCM - Air

NIOSH 7400 (A) Issue 2: August 1994

OSHA w/17A

TEM AIR

AHERA 40 CFR, Part 763 Subpart E

NIOSH 7402 Issue 2

EPA Level II

PLM - Bulk

EPA 600/R-93/116

NY Stratified Point Count

California Air Resource Board (CARB) 435

NIOSH 9062

PLM NOB (Gravimetric) NYS 198.1

EPA Point Count (460 Points)

EPA Point Count (1,000 Points)

Standard Addition Point Count

SOILS

EPA Protocol Qualitative

EPA Protocol Quantitative

EMSL MSD 9000 Method fibers/gram

Superfund EPA 540-R097-028 (Just generation)

TEM BULK

Drop Mount (Qualitative)

Chatfield SOP-1988-02

TEM NOB (Gravimetric) NY 198.4

TEM MICROVAC

ASTM D 5755-95 (Quantitative)

TEM WIPE

ASTM D-6486-99

Qualitative

TEM WATER

EPA 100.1

EPA 100.2

NYS 198.2

OTHER: _____

LEAD ANALYSIS

Flame Atomic Absorption

Wipe, SW846-7420 ASTM non ASTM

Soil, SW846-7420

Air, NIOSH 7082

Chips, SW846-7420 or AOAC 5.009 (974.02)

Wastewater, SW 846-7420

TCLP LEAD SW846-1311/7420

Graphite Furnace Atomic Absorption

Air, NIOSH 7105

Wastewater, SW846-7421

Soil, SW846-7421

Drinking Water, EPA 239.2

ICP - Inductively Coupled Plasma

Wipe, SW846-6010 ASTM non ASTM

Soil, SW846-6010

Air, NIOSH 7300

MATERIALS ANALYSIS

Full Particle Identification

Optical Particle Identification

Dust Mixes and Insect Fragments

Particle Size & Distribution

Product Comparison

Paint Characterization

Failure Analysis

Corrosion Analysis

Glove Box Containment Study

Petrographic Examination of Concrete

Portland Cement in Workplace Atmospheres (OSHA ID-143)

Man Made Vitreous Fibers - MMVF's

Synthetic Fiber Identification

Other: _____

MICROBIAL ANALYSIS

Air Samples

Mold & Fungi by Air O Cell

Mold & Fungi by Agar Plate count & id

Bacterial Count and Gram Stain

Bacterial Count and Identification

Water Samples

Total Coliforms, Fecal Coliforms

Escherichia Coli, Fecal Streptococcus

Legionella

Salmonella

Giardia and Cryptosporidium

Wipe and Bulk Samples

Mold & Fungi - Direct Examination

Mold & Fungi - (Culture follow up to direct examination if necessary)

Mold & Fungi - Culture (Count & ID)

Mold & Fungi - Culture (Count only)

Bacterial Count & Gram Stain

Bacterial Count & Identification (3 most prominent types)

Other: _____

IAQ ANALYSIS

Nuisance Dust (NIOSH 0500 & 0600)

Airborne Dust (PM10, TSP)

Silica Analysis by XRD NIOSH 7500

HVAC Efficiency

Carbon Black

Airborne Oil Mist

Other: _____

Client Sample # (S) _____

Relinquished: _____ Date: _____ Time: _____

Received: KE Date: 7/7 Time: _____

Relinquished: _____ Date: _____ Time: _____

Received: _____ Date: _____ Time: 10:30

TOTAL SAMPLE # 16

Page 1 of 3

4331

Reset Form

Print Form



Building # HUMANITIES CAFE

Type of Analysis: Lead / Asbestos

Date: 07-06-2010

Turn Around Time 24 HRS

Area	Sample ID	Material Sampled	Material Location	F/NF	Cond	Quantity	Pot to Disturb
A	1	JOINT COMPOUND	OFFICE OF THE CAFE	F	G	5 SQ FT	LOW
B	2	SHEET ROCK	OFFICE OF THE CAFE	F	G	50 SQ FT	LOW
A	3	JOINT COMPOUND	LEFT HAND WALL AREA	F	G	40 SQ FT	LOW
B	4	SHEET ROCK	LEFT HAND WALL AREA	F	G	1400 SQ FT	LOW
A	5	JOINT COMPOUND	LEFT OF EXIT DOOR AREA	F	G	40 SQ FT	LOW
B	6	SHEET ROCK	LEFT OF EXIT DOOR AREA	F	G	1400 SQ FT	LOW
B	7	SHEET ROCK	RIGHT HAND SIDE OF COLUMN	F	G	1400 SQ FT	LOW
B	8	SHEET ROCK	LEFT HAND SIDE OF SECOND COLUMN	F	G	1400 SQ FT	LOW
C	9	BLACK HVAC DUCT MASTIC	ABOVE CEILING ON HVAC DUCTS	F	G	2 CUBIC FT	LOW
C	10	BLACK HVAC DUCT MASTIC	ABOVE CEILING ON HVAC DUCTS	F	G	2 CUBIC FT	LOW

License # ASBI-00568

FM# FM00338223

Signature *[Handwritten Signature]*

Requestor DON GIBSON

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

Ed Pitts 803-777-3296
 720 College St.
 Columbia, SC 29208
 EHP@fmc.sc.edu

Darryl Washington 803-777-2399
 720 College St.
 Columbia, SC 29208
 WashinDH@fmc.sc.edu

Ty Russell 803-777-1208
 720 College St.
 Columbia, SC 29208
 NTRussse@fmc.sc.edu

Fax # 803-777-3990

4331

Reset Form

Print Form



Building # _____ Sample Analysis Type of Analysis: Lead / Asbestos Date:

Turn Around Time _____

Area	Sample ID	Material Sampled	Material Location	F/NF	Cond	Quantity	Pot to Disturb
C	11	BLACK MASTIC HVAC	ON HVAC DUCTS ABOVE CEILING	NF	G	2 CUBIC FT	LOW
D	12	CEILING SPRAY	ON CEILING MATERIALS OF CAFE	F	G	1500 SQ FT	LOW
D	13	CEILING SPRAY	ON CEILING MATERIALS OF CAFE	F	G	1500 SQ FT	LOW
D	14	CEILING SPRAY	ON CEILING MATERIALS OF CAFE	F	G	1500 SQ FT	LOW
D	15	CEILING SPRAY	ON CEILING MATERIALS OF CAFE	F	G	1500 SQ FT	LOW
D	16	CEILING SPRAY	ON CEILING MATERIALS OF CAFE	F	G	1500 SQ FT	LOW

License # _____ FM# _____ Signature _____ Requestor _____

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

Ed Pitts 803-777-3296
720 College St.
Columbia, SC 29208
EHP@fmc.sc.edu

Darryl Washington 803-777-2399
720 College St.
Columbia, SC 29208
WashinDH@fmc.sc.edu

Ty Russell 803-777-1208
720 College St.
Columbia, SC 29208
NTRussse@fmc.sc.edu

Fax # 803-777-3990

APPENDIX C

Personnel Certifications

SCDHEC ISSUED
Asbestos ID Card

Michael Mincey

Expires



CONSULTMP
AIRSAMPLER
SUPERAHERA

MP-00161 02/12/13
AS-00272 02/12/13
SA-01424 02/12/13

SCDHEC ISSUED
Asbestos ID Card

Glynn M Ellen

Expires



AIRSAMPLER
CONSULTPD
CONSULTMP
SUPERHERA

AS-00079 02/13/13
PD-00098 06/30/12
ASB-22641 02/12/13
SA-00455 02/13/13

APPENDIX D

SCDHEC Regulations

SCDHEC Abatement Project Forms

Air Quality

Asbestos - Regulatory Information

RENOVATIONS & DEMOLITIONS

Note: This information should serve as a guide only and is not intended to replace the regulations. For additional information concerning DHEC and EPA regulations, contact DHEC's Asbestos Section at (803) 898-4289. Information regarding the OSHA asbestos standards may be obtained from the South Carolina Department of Labor, Licensing and Regulation at (803) 734-9669.

APPLICABILITY

Renovation and demolition of most facilities, including buildings, structures, and other installations, are subject to State and Federal asbestos regulations. Certain residential buildings may be exempt unless the property was used in the past for non-residential purposes (contact the Asbestos Section for additional information) or is part of a larger development such as highway right-of-way, mall development, urban renewal or other type of similar development. The facility owner and the renovation or demolition contractor are both responsible for ensuring compliance with these regulations.

DEFINITIONS

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of regulated asbestos-containing material (RACM) from a facility component. "Remodeling" is considered renovation.

Demolition is the wrecking or taking out of any load-supporting structural member of a facility and any related handling operations. Structural burns are prohibited by State Open Burning Regulations.

INSPECTION FOR ASBESTOS

Before a facility or a portion of a facility is renovated or demolished, the owner/operator of the facility or renovation or demolition activity must ensure that the facility or portion of the facility being renovated or demolished has been thoroughly inspected for the presence of asbestos. The inspection must be performed by a person who has been trained and licensed as an Asbestos Building Inspector or management planner in accordance with State training and licensing requirements.

The inspector must identify, quantify, and assess the condition of all suspect asbestos-containing materials, either friable or non-friable, on interior and exterior portions of the facility. The inspector must also comply with the procedures specified in 40 CFR 763.86 in determining sampling locations and the number of representative samples to be collected. In addition, the

inspector is required to prepare a written report detailing the findings of the inspection. At a minimum, the report must include information required in 40 CFR 763.85 (a)(4)(vi)(A)-(E), as well as the date of inspection and the name, license number, and signature of the licensed Asbestos Building Inspector or Management Planner who performed the inspection and completed the report. A legible copy of the building inspection report must be provided to the Department prior to each demolition, and upon request for renovations. **(Note: "BUILDING INSPECTIONS" can be consulted for a detailed explanation of the aforementioned sampling and reporting protocols.)**

A building inspection will only be acceptable if performed **within three years** prior to the demolition or renovation. If an inspection report is more than three years old, then it must be confirmed and verified by a licensed Asbestos Building Inspector or Management Planner.-

FRIABLE ASBESTOS-CONTAINING MATERIALS

If friable asbestos-containing materials (e.g., pipe insulation) are present, they must be removed prior to being disturbed during renovation or demolition activities. Removal (abatement) must be performed by trained, licensed persons using procedures detailed in State and Federal regulations.

A project design must be prepared for each asbestos abatement project involving the abatement of greater than 3,000 square feet, 1,500 linear feet and/or 656 cubic feet of RACM in a facility to be reoccupied. Such designs must be prepared by a person licensed by the Department as an Asbestos Project Designer.

NON-FRIABLE ASBESTOS-CONTAINING MATERIALS

During renovations, removal of non-friable materials (e.g., vinyl-asbestos floor tiles and sheet flooring, mastics, asphaltic roofing, and asbestos-cement siding and roofing tiles) may be regulated. Applicability is dependent upon the removal methods to be used. If it can be anticipated that non-friable materials will be ground, crumbled, sanded, abraded, chipped or pulverized, the removal is subject to the same rules as removal of friable materials.

Prior to any demolition, non-friable asbestos-cement products (e.g., transite siding, exterior siding and roofing shingles) must be removed. Asbestos-containing sheet flooring and floor tiles, as well as asphaltic roofing products, need not be removed if they are in good condition and have not become brittle and are not peeling, cracking, or crumbling. Otherwise, they must also be removed prior to demolition. If it can be anticipated that non-friable materials will be ground, crumbled, sanded, abraded, chipped or pulverized, the materials must be removed and the removal is subject to the same rules as removal of friable materials. The amount of any non-friable asbestos that will remain in place during demolition must also be indicated on the written notification form.

All asbestos-containing materials must be removed if the facility will be demolished by non-standard demolition techniques such as implosion, explosion, or intentional burning.

NOTIFICATION FOR RENOVATIONS AND DEMOLITIONS

Prior to removing regulated asbestos-containing materials, written notification must be submitted to the Department (up to 10 working days in advance, depending on the amount of asbestos to be removed). The notification must include certain required items of information about the owner, the contractor, the facility, and the asbestos removal project. Required fees must be submitted along with the notification. You must obtain a permit from the Department prior to the renovation activity.

Prior to the demolition of any regulated facility, written notification must be submitted to the Department *at least 10 working days* in advance **even if a building inspector determines that asbestos is not present at the facility**. The notification must include certain required items of information about the owner, the contractor, the facility, and the demolition project. Required fees and a copy of the building inspector's report must be submitted along with the notification of demolition. You must obtain a permit from the Department prior to the demolition activity.

DISPOSAL

Never burn any asbestos-containing waste material.

Non-asbestos-containing demolition debris and debris which contains only non-regulated roofing or flooring may be disposed of at a DHEC-approved disposal site for cellulosic or inert waste. Waste consolidation activities involving grinding, cutting, or compacting of non-friable asbestos-containing materials will subject these materials to more stringent State and Federal asbestos disposal regulations.

Regulated asbestos waste must be handled by properly licensed asbestos abatement personnel and disposed of at a landfill permitted to accept regulated asbestos waste. A list of approved landfills may be obtained from the Asbestos Section.

REGULATORY REQUIREMENTS FOR BUILDING INSPECTION

As required by the National Emission Standard for Hazardous Air Pollutants (NESHAP) and SCDHEC Regulation 61-86.1, an owner/operator shall ensure that a building inspection to detect the presence of asbestos-containing materials (ACM) has been performed prior to any renovation or demolition activity at a regulated facility.

Under SCDHEC Regulation 61-86.1, Section VI.A.6., an inspection cannot have been performed more than three years prior to a renovation or demolition activity. If more than three years have elapsed since the most recent inspection, the previous inspection shall be confirmed and verified by a licensed building inspector and/or management planner.

SCDHEC Regulation 61-86.1 requires that all inspections be performed by persons trained and licensed as either a building inspector and/or management planner. In order to be licensed in these disciplines, persons must have successfully completed a Department approved initial training course specific to inspecting for ACM in a building and/or a course specific to

management planning for ACM in a building. Persons must also have taken and passed an examination at the end of the course with a score of 70 percent or above.

In performing inspections, SCDHEC Regulation 61-86.1 requires that a building inspector and/or management planner comply with the requirements of Section VI, Asbestos Building Inspection Requirements. An inspection shall include samples from suspect friable and non-friable ACM on interior and exterior portions of a facility or its facility components.

In performing inspections, SCDHEC Regulation 61-86.1 requires that a building inspector and/or management planner follow specific sampling procedures. According to Section IV.B.3.a of the regulation, a building inspector and/or management planner shall comply with the procedures specified in **40 CFR 763.86** in determining sampling locations and the number of representative samples to be collected. An inspection shall include samples from suspect friable and non-friable ACM on interior and exterior portions of a facility or its facility components.

Under 40 CFR Part 763.86, suspect ACM are divided into three categories: surfacing materials, thermal system insulation (commonly referred to as TSI), and miscellaneous materials. SCDHEC Regulation 61-86.1, Section VI contains sampling procedures specific to each category of material.

Surfacing material includes, but is not limited to, joint compound, plaster, and painted, troweled on, or spray-applied textured material. To remain in compliance with SCDHEC Regulation 61-86.1, surfacing materials on exterior and interior portions of a facility shall be sampled according to procedures outlined in SCDHEC Regulation 61-86.1, Section VI.D.1. (a)-(c):

- A licensed asbestos inspector shall collect, in a statistically random manner, a minimum of three bulk samples from each homogeneous area of any surfacing that is not assumed to be ACM, and shall collect the samples as follows:
 - At least three bulk samples shall be collected from each homogeneous area that is 1,000 or fewer square feet (sf) or linear feet (Lf) in size.
 - At least five bulk samples shall be collected from each homogeneous area that is greater than 1,000 but fewer than or equal to 5,000 sf or Lf.
 - At least seven bulk samples shall be collected from each homogeneous area that is greater than 5,000 sf or Lf.

Thermal system insulation (TSI) is any material that is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other facility components for the purpose of preventing heat loss or gain, water condensation, or for other purposes. **Miscellaneous Material** is any material that is not considered a surfacing material or thermal system insulation and includes, but is not limited to, flooring, roofing, mastics, gaskets, cementitious materials, caulking, ceiling tiles, fire doors, wall boards, and flexible duct connections. To remain in compliance with SCDHEC Regulation 61-86.1, TSI and miscellaneous materials on exterior and interior portions of a facility shall be sampled in accordance with procedures outlined in SCDHEC Regulation 61-86.1, Section VI.D.2:

- A licensed asbestos inspector shall collect, in a statistically random manner, at least three bulk samples from each homogeneous area of TSI and any miscellaneous material that is not assumed to be ACM.
- In accordance with ASTM E2356, and any subsequent amendments and editions, negative results for non-friable organically bound materials (NOB) shall be verified with at least one TEM analysis.
- NOBs include flooring, roofing, mastics, adhesives, caulks, and glazing.
- If an accredited inspector has determined the thermal system insulation to be fiberglass, foam glass, rubber, or other non-suspect material, then bulk samples are not required.

SCDHEC Regulation 61-86.1, Section VI.C requires that a building inspector and/or management planner prepare a written asbestos building inspection report to include the following:

- A title page denoting: (1) The client's name, company, address, and telephone number, and the name and exact location of the facility inspected; (2) the date the inspection was performed; (3) the date the inspection report was written; and (4) the printed name and telephone number of the inspector(s), and his or her affiliated company name, address, and telephone number.
- A cover letter to the building owner or owner's representative that describes the purpose of the inspection; a general synopsis of the inspection and results; and the name, title, and signature of the inspector(s) and report writer, if different.
- A detailed narrative of the physical description of the building or part of the building affected by the renovation or demolition operation that includes: (1) The square footage of the building or part of the building affected by the renovation or demolition operation; (2) The building materials used in the construction of the exterior, roof, interior, and basement or crawlspace of the building affected by the demolition or affected by the renovation materials operation; (3) An estimated or exact quantity (square or linear feet) for all suspect materials whether sampled for or assumed to be asbestos that may be affected by the renovation or demolition operation; (4) Also include a description of non-suspect materials excluding: glass, metals, kiln brick, cement, fiberglass, concrete, pressed wood, cinder block, and rubber.
- An executive summary that details: (1) The type of suspect ACM (e.g., TSI, floor tile, mastic), total square or linear footage, and the total number of samples collected for each separate homogenous area affected by the renovation or demolition operation; (2) The date of the inspection, type, condition, quantity, sample results, and exact location of ACM positively identified or assumed to be ACM in the part of the building affected by the renovation or demolition operation; (3) A list of the homogeneous areas identified; (4) Whether the material is accessible for the building or part of the building affected by the renovation or demolition operation; and (5) The material's potential for disturbance for the building or part of the building affected by the renovation or demolition operation.
- For renovation and demolition operations, the inspector's determination that ACM is friable or non-friable.
- Except when suspect ACM materials are assumed to be asbestos, include a complete, clear, legible copy of all laboratory bulk sample results.

- Clear, legible drawings and/or photographs to clarify the scope of the renovation or demolition operation. Illustrate the exact location of each sample collected. For facilities that involve a trade secret or confidential component or an affected area process, a request for a variance may be submitted.
- The printed name and signature of each accredited inspector who collected the samples, and a clear legible copy of his or her Department issued asbestos building inspector or management planner license



ASBESTOS ABATEMENT PROJECT LICENSE APPLICATION
 BUREAU OF AIR QUALITY • ASBESTOS SECTION • 2600 BULL STREET • COLUMBIA • SC • 29201

TYPE OF OPERATION: Standard Removal Emergency Removal Enclosure Encapsulation Cleanup Disposal

FOR OFFICE USE Postmark/Received: _____	Original <input type="checkbox"/> / Revised <input type="checkbox"/> / Cancellation <input type="checkbox"/> (check one)	Project License I.D. (For Revisions/Cancellations): _____
--	--	---

I. FACILITY OWNER: _____
 MAILING ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 CONTACT PERSON: _____ PHONE: (____) _____

II. REMOVAL CONTRACTOR: _____
 MAILING ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 CONTACT PERSON: _____ PHONE: (____) _____
 E-MAIL ADDRESS: _____ E-MAIL PERMIT OR MAIL PERMIT
 FEDERAL I.D. NUMBER: _____
 DHEC CONTRACTOR LICENSE NO. (If applicable): _____ EXPIRATION DATE: _____

III. FACILITY NAME: _____
 STREET ADDRESS: _____
 CITY: _____ STATE: _____ COUNTY: _____
 SITE (ROOM, FLOOR, WING, UNIT, MACHINE, ETC.): _____
 BUILDING SIZE: _____ NO. OF FLOORS: _____ AGE IN YEARS: _____
 PRESENT USE: _____ PRIOR USE: _____ FUTURE USE: _____

IV. PROCEDURES, INCLUDING ANALYTICAL METHOD IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:
 FACILITY OR FACILITY COMPONENT SURVEYED BY (INSPECTOR NAME): _____
 COMPANY: _____ PHONE: (____) _____
 DHEC LICENSE NUMBER: _____ EXPIRATION DATE: _____

V. PROJECT DESIGN PERFORMED BY (IF APPLICABLE): _____
 COMPANY: _____ PHONE: (____) _____
 DHEC LICENSE NUMBER: _____ EXPIRATION DATE: _____

VI. ASBESTOS-CONTAINING MATERIALS (ACM) **TO BE REMOVED ONLY:**

TYPE (TSI, SURFACING, FLOORING, ROOFING, ETC.)	AMOUNT (SQUARE FEET, LINEAR FEET, CUBIC FEET)	CONDITION (CIRCLE ONE)
		<input type="checkbox"/> FRIABLE <input type="checkbox"/> NON-FRIABLE
		<input type="checkbox"/> FRIABLE <input type="checkbox"/> NON-FRIABLE
		<input type="checkbox"/> FRIABLE <input type="checkbox"/> NON-FRIABLE
		<input type="checkbox"/> FRIABLE <input type="checkbox"/> NON-FRIABLE

VII. SCHEDULED DATES OF REMOVAL: START DATE: _____ COMPLETION DATE: _____
 WORK DAYS: _____ WORK HOURS: _____

<p>APPLICATIONS MUST BE SUBMITTED WITH FEES PRIOR TO THE SCHEDULED START DATE AS FOLLOWS:</p> <p>NESHAP PROJECTS: 10 WORKING DAYS SMALL PROJECTS: 4 WORKING DAYS MINOR PROJECTS: 2 WORKING DAYS</p> <p>Non-Friable (NESAP-sized) Projects: 4 working days. No fee for non-friable ACM.</p> <p>For additional information concerning regulatory requirements call or visit our Web site at http://www.scdhec.gov/environment/baq/asbestos.aspx</p>	<p>FEE SCHEDULE FOR FRIABLE ASBESTOS-CONTAINING MATERIALS:</p> <p>10 CENTS PER SQUARE FOOT OR LINEAR FOOT MINIMUM FEE OF \$25.00 MAXIMUM FEE OF \$1000.00</p>
--	--

VIII. DESCRIPTION OF PLANNED ABATEMENT WORK & METHOD(S) TO BE USED:

IX. DESCRIPTION OF WORK PRACTICES & ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE RENOVATION SITE:

X. WASTE TRANSPORTER #1: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

WASTE TRANSPORTER #2: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

XI. WASTE DISPOSAL SITE: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

TEMPORARY ASBESTOS STORAGE CONTAINMENT AREA LICENSE NUMBER (IF APPLICABLE): _____

XII. DESCRIPTION OF EMERGENCY REMOVAL (PLEASE ATTACH A LETTER FROM THE FACILITY OWNER EXPLAINING THE NATURE OF THE EMERGENCY)

DATE & HOUR OF EMERGENCY (MM/DD/YY): _____

DESCRIPTION OF SUDDEN, UNEXPECTED EVENT:

EXPLANATION OF HOW THE EVENT CAUSED UNSAFE CONDITIONS AND/OR WOULD CAUSE EQUIPMENT DAMAGE AND/OR AN UNREASONABLE FINANCIAL BURDEN:

XIII. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NON-FRIABLE ASBESTOS MATERIAL BECOMES CRUMBLD, PULVERIZED OR REDUCED TO POWDER:

XIV. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS.

(SIGNATURE OF OWNER/OPERATOR)

(DATE)

XIV. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

(SIGNATURE OF OWNER/OPERATOR)

(DATE)



DEMOLITION LICENSE APPLICATION

BUREAU OF AIR QUALITY • ASBESTOS SECTION • 2600 BULL STREET • COLUMBIA • SC • 29201

TYPE OF OPERATION: Total Demolition Partial Demolition Ordered Demolition

FOR OFFICE USE

Postmark/Received: _____

Original/Revised/Cancellation (circle one)

Project License I.D. (For Revisions/Cancellations): _____

I. FACILITY OWNER: _____
 MAILING ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 CONTACT PERSON: _____ PHONE: (____) _____

II. IS ASBESTOS PRESENT IN THE FACILITY?: YES / NO (check one)

III. DEMOLITION CONTRACTOR: _____ FEDERAL ID NO.: _____
 MAILING ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 CONTACT PERSON: _____ PHONE: (____) _____
 E-MAIL ADDRESS: _____ E-MAIL PERMIT OR MAIL PERMIT
 FEDERAL I.D. NUMBER: _____
 ASBESTOS REMOVAL CONTRACTOR (If applicable): _____
 MAILING ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 CONTACT PERSON: _____ PHONE: (____) _____

IV. FACILITY NAME: _____
 STREET ADDRESS: _____
 CITY: _____ STATE: _____ COUNTY: _____
 SITE (ROOM, FLOOR, WING, UNIT, MACHINE, ETC.): _____
 BUILDING SIZE: _____ NO. OF FLOORS: _____ AGE IN YEARS: _____
 PRESENT USE: _____ PRIOR USE: _____ FUTURE USE: _____

V. PROCEDURES, INCLUDING ANALYTICAL METHOD IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:
 FACILITY OR FACILITY COMPONENT SURVEYED BY (INSPECTOR NAME): _____
 COMPANY: _____ PHONE: (____) _____
 DHEC LICENSE NUMBER: _____ EXPIRATION DATE: _____

VI. NON-FRIABLE MASTIC, GLUE, AND ADHESIVE ASBESTOS-CONTAINING MATERIALS **REMAINING IN PLACE DURING DEMOLITION** (IF APPLICABLE):

TYPE (MASTIC, GLUE, AND ADHESIVE)	AMOUNT (SQUARE FEET)

VII. SCHEDULED DATES OF DEMOLITION (YOU MUST SPECIFY DATES):
 START DATE: _____ COMPLETION DATE: _____
 WORK DAYS: _____ WORK HOURS: _____

- **Applications must be mailed along with a \$50.00 fee (payable to SCDHEC) at least 10 working days prior to the scheduled start date. Faxes will not be accepted.**
- **A copy of an asbestos survey report (no older than 3 years) must accompany the application.**

For additional information concerning regulatory requirements call or visit our Web site at <http://www.scdhec.gov/environment/baq/asbestos.aspx>

VIII. DESCRIPTION OF PLANNED DEMOLITION METHOD(S) TO BE USED:

BULLDOZER LOADER WRECKING BALL MANUAL BURNING IMPLOSION/EXPLOSION

IF OTHER PLEASE DESCRIBE:

IX. DESCRIPTION OF WORK PRACTICES & ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION SITE:

X. WASTE TRANSPORTER #1: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

WASTE TRANSPORTER #2: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

XI. WASTE DISPOSAL SITE: _____

MAILING ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ PHONE: (_____) _____

XII. IF DEMOLITION ORDERED BY GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW: (PLEASE ATTACH A COPY OF THE ORDER)

NAME: _____ TITLE: _____

AUTHORITY: _____

DATE OF ORDER (MM/DD/YY): _____ DATE ORDERED TO BEGIN(MM/DD/YY): _____

XIII. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDER:

XIV. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION INVOLVING RACM AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS.

(SIGNATURE OF OWNER/OPERATOR)

(DATE)

XV. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.

(SIGNATURE OF OWNER/OPERATOR)

(DATE)

- **Applications must be mailed along with a \$50.00 fee (payable to SCDHEC) at least 10 working days prior to the scheduled start date. Faxes will not be accepted.**
- **A copy of an asbestos survey report (no older than 3 years) must accompany the application.**

For additional information concerning regulatory requirements call or visit our Web site at <http://www.scdhec.gov/environment/baq/asbestos.aspx>

FACILITY_NAME	Permit Number	Landfill Designation	County	EQC Region	Telephone Number
Abbeville County C&D LF	011001-1201	Class II	Abbeville	1	(864) 446-8473
Aiken County C&D and LCD Landfill (Barden)	021001-1201	Class II	Aiken	5	(803) 642-1533
Aiken County Wagener C&D Landfill	021001-1202	Class II	Aiken	5	(803) 642-1533
Bamberg County C&D and LCD Landfill	051001-1201	Class II	Bamberg	5	(803) 245-3090
Barnwell County C&D Landfill	061001-1201	Class II	Barnwell	5	(803) 541-1009
Barnwell Resources, Inc C&D and LCD Landfill	072410-1201	Class II	Beaufort	8	(843) 525-6137
Bennett ISW Landfill	122493-1201	Class II	Chester	3	(864) 545-2323
Berkeley County C&D Landfill	081001-1201	Class II	Berkeley	7	(803) 572-4400 Ext. 3009
Calhoun County C&D and LCD Landfill	091001-1201	Class II	Calhoun	5	(803) 874-2192
Carolina Grading, Inc. Landfill (formerly Earth Management, Inc. Inert)	402446-1601	Class II	Richland	3	(803) 788-3054
Carolina Landfill (formerly Affordable Waste C&D LF)	182765-1201	Class II	Dorchester	7	(843) 860-2857
Carolina Materials C&D and LCD Landfill	322611-1201	Class II	Lexington	3	(803) 808-3344
Charleston County Bees Ferry C&D LF	101001-1201	Class II	Charleston	7	(843) 720-7111
Cherokee County C&D Landfill	111001-1201	Class II	Cherokee	2	(864) 487-2537
Chester County C&D and LCD Landfill	121001-1201	Class II	Chester	3	(803) 385-5133
City of Clinton C&D and LCD Landfill	301002-1201	Class II	Laurens	1	(864) 833-7520
City of Gaffney C&D Landfill	111002-1201	Class II	Cherokee	2	(864) 487-8510
City of Lake City C&D LF (Replacement)	211002-1202	Class II	Florence	4	(843) 374-5421
Clarendon County C&D and LCD Landfill	141001-1203	Class II	Clarendon	4	(803) 435-8424
Clemson University Long Term C&D and LCD Landfill	041804-1202	Class II	Anderson	1	(864) 656-4229
Colleton County C&D Landfill	151001-1201	Class II	Colleton	8	(843) 893-2313
Coltharp C&D and LCD Landfill	462602-1201	Class II	York	3	(803) 548-1700
Curry Lake C&D Landfill	302693-1201	Class II	Laurens	1	(864) 876-4067
Darlington County C&D and LCD Landfill	161001-1201	Class II	Darlington	4	(843) 398-4100
Dillon County C&D and LCD Landfill	171001-1202	Class II	Dillon	4	(843) 774-1400
Easley C&D and LCD Landfill	391001-1201	Class II	Pickens	2	(864) 859-3492
Edmund (Lex Cty) C&D LF Cell 2	321001-1202	Class II	Lexington	3	(803) 755-3325
Enterprise Material Handling C&DLF (formerly Nehme)	042733-1201	Class II	Anderson	1	(864) 225-7116
Florence County C&D Landfill	211001-1201	Class II	Florence	4	(843) 676-8600
Furr Facility C&D Landfill	132670-1201	Class II	Chesterfield	4	(843) 537-2881
Georgetown County C&D and LCD Landfill	221001-1202	Class II	Georgetown	6	(843) 546-4730
Greenville LT C&D LF (Republic)	232441-1201	Class II	Greenville	2	(864) 277-6500
Greenwood County C&D Landfill	241001-1201	Class II	Greenwood	1	(864) 942-8754
Hampton County C&D and LCD Landfill	251001-1201	Class II	Hampton	8	(803) 625-0197
Horry County Solid Waste Authority C&D and LCD Landfill	261001-1201	Class II	Horry	6	(843) 347-1651
Kershaw County C&D and LCD Landfill	281001-1201	Class II	Kershaw	4	(803) 425-7187
Lexington County (Edmund) C&D and LCD Landfill	321001-1201	Class II	Lexington	3	(803) 755-3325
Loveless & Loveless, Inc. C&D and LCD Landfill	282428-1201	Class II	Kershaw	4	(803) 788-6418
Marion County C&D LF	341001-1201	Class II	Marion	4	
Mining Road Industrial Solid Waste Landfill	292440-1601	Class II	Lancaster	3	(704) 895-0329

Oakwood C&D Landfill and Recycling Center (Cell 2)	272438-1202	Class II	Jasper	8	(843) 726-2100
Orangeburg County C&D	381001-1201	Class II	Orangeburg	5	(803) 533-6101
Owens Corning Fiberglass	022431-1601	Class II	Aiken	5	(803) 648-8351
Pee Dee Environmental Services, Inc Industrial Solid Waste Landfill	212426-1601	Class II	Florence	4	(843) 229-8777
Pine Hill C&D LF (Replaced TNT)	282401-1201	Class II	Kershaw	4	(803) 788-3054
Rainbow Falls Road C&D LF	022737-1201	Class II	Aiken	5	(803) 663-3118
Richland County C&D and LCD Landfill	401001-1202	Class II	Richland	3	(803) 576-2445
Rogers C&D Landfill	462427-1201	Class II	York	3	(803) 327-5705
S&T Recycling, LLC C&D LF	322456-1203	Class II	Lexington	3	(803) 951-3744
Sandlands C&D & LCD LF	342729-1201	Class II	Marion	4	(843) 362-3155
Sandlands C&D & LCD LF - Phase II	342729-1202	Class II	Marion	4	(843) 362-3155
Seneca 2 (Oconee)C&D and LCD Landfill	371001-1202	Class II	Oconee	1	(864) 888-1440
Southeastern Associates C&D Landfill	322428-1201	Class II	Lexington	3	(803) 788-6418
Southeastern Resource Recovery Inc.	362624-1601	Class II	Newberry	3	(919) 719-8680
Spring Grove Environmental Class I Appendix I Ind Waste LF	102441-1601	Class II	Charleston	7	(843) 552-4751
Starr C&D and LCD Landfill	041001-1203	Class II	Anderson	1	(864) 260-1001
Sumter County C&D Landfill Phase 3	431001-1203	Class II	Sumter	4	(803) 436-2114
Twin Chimneys C&D Landfill	231001-1202	Class II	Greenville	2	(864) 234-5847
Wasp Nest Road C&D Landfill (Spartanburg County)	421001-1202	Class II	Spartanburg	2	(864) 949-0211
WCA Shiloh C&D/LCD LF (WingQuarry)	232644-1201	Class II	Greenville	2	(864) 610-2700
Williamsburg County C&D Landfill	451001-1201	Class II	Williamsburg	6	(843) 387- 5133
York County C&D and LCD Landfill	461001-1201	Class II	York	3	(803) 628-3200
Abbeville County MSWLF	011001-1102	Class III	Abbeville	1	(864) 446-8473
Anderson Regional Landfill	042651-1101	Class III	Anderson	1	(864) 338-1815
Bees Ferry Road MSWLF	101001-1101	Class III	Charleston	7	(843) 720-7111 (843-571-
Berkeley County W&SA MSWLF	081001-1102	Class III	Berkeley	7	(843) 572-4400
Georgetown County MSWLF	221001-1102	Class III	Georgetown	6	(843) 546-4189
Greenwood County MSWLF	241001-1101	Class III	Greenwood	1	(864) 942-8661
Hickory Hill MSWLF	272401-1101	Class III	Jasper	8	(843) 987-4643
Horry County SWA MSWLF	261001-1102	Class III	Horry	6	(843) 347-1651
Lee County Landfill SC, LLC	312411-1101	Class III	Lee	4	(803) 428-2400
Northeast Landfill, LLC MSW Landfill	402434-1101	Class III	Richland	3	(803) 353-0563
Oakridge Landfill, Inc.	182400-1101	Class III	Dorchester	7	(843) 563-2607
Palmetto Landfill & RC	422401-1101	Class III	Spartanburg	2	(864) 439-9184
Pepperhill Regional Industrial SW Landfill	182441-1601	Class III	Dorchester	7	(843) 552-4751
Richland Landfill, Inc.	402401-1101	Class III	Richland	3	(803) 788-3054
Three Rivers Regional MSWLF	024202-1101	Class III	Aiken	5	(803) 652-2225
Twin Chimneys MSW Landfill	231001-1102	Class III	Greenville	2	(864) 234-5847
Union County Regional MSWLF dba Upstate Regional MSWLF	442441-1101	Class III	Union	2	(864) 969-4460
Wellford MSWLF	421001-1101	Class III	Spartanburg	2	(864) 949-0211
Williamsburg County MSWLF	451001-1101	Class III	Williamsburg	6	(843) 387-5133

1 SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Demolition and removal of selected portions of building or structure.
9 2. Demolition and removal of selected site elements.
10 3. Salvage of existing items to be reused or recycled.

11 1.3 DEFINITIONS

- 12 A. Remove: Detach items from existing construction and legally dispose of them off-site, unless
13 indicated to be removed and salvaged or removed and reinstalled.
- 14 B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- 15 C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and
16 reinstall them where indicated.
- 17 D. Existing to Remain: Existing items of construction that are not to be removed and that are not
18 otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

19 1.4 MATERIALS OWNERSHIP

- 20 A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their
21 contents, commemorative plaques and tablets, antiques, and other items of interest or value to
22 Owner that may be encountered during selective demolition remain Owner's property.
23 Carefully remove and salvage each item or object in a manner to prevent damage and deliver
24 promptly to Owner.
- 25 1. Coordinate with Owner's historical adviser, who will establish special procedures for
26 removal and salvage.

27 1.5 SUBMITTALS

- 28 A. Qualification Data: For demolition firm.

- 29 B. Schedule of Selective Demolition Activities: Indicate the following:
- 30 1. Detailed sequence of selective demolition and removal work, with starting and ending
31 dates for each activity. Ensure Owner's USC's project and other tenants' when on-site
32 operations are to be uninterrupted.
- 33 2. Interruption of utility services. Indicate how long utility services will be interrupted.
- 34 3. Coordination for shutoff, capping, and continuation of utility services.
- 35 4. Use of elevator and stairs. These must remain in use 24/7/365.
- 36 5. Locations of proposed dust- and noise-control temporary partitions and means of
37 egress, including for other tenants affected by selective demolition operations. See also
38 and comply with requirements on sheet 01 and 02 for phasing.
- 39 6. Coordination of Owner's continuing occupancy of portions of existing building and of
40 Owner's partial occupancy of completed Work.
- 41 7. Means of protection for items to remain and items in path of waste removal from
42 building.
- 43 C. Inventory: After selective demolition is complete, submit a list of items that have been removed
44 and salvaged.
- 45 D. Predemolition Photographs or Videotapes: Show existing conditions of adjoining construction
46 and site improvements, including finish surfaces, that might be misconstrued as damage caused
47 by selective demolition operations. Submit before Work begins.
- 48 1.6 QUALITY ASSURANCE
- 49 A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work
50 similar in material and extent to that indicated for this Project.
- 51 B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification
52 program.
- 53 C. Regulatory Requirements: Comply with governing EPA notification regulations before
54 beginning selective demolition. Comply with hauling and disposal regulations of authorities
55 having jurisdiction.
- 56 D. Standards: Comply with ANSI A10.6 and NFPA 241.
- 57 E. Predemolition Conference: Conduct conference at Project site. Review methods and procedures
58 related to selective demolition including, but not limited to, the following:
- 59 1. Inspect and discuss condition of construction to be selectively demolished.
- 60 2. Review structural load limitations of existing structure.
- 61 3. Review and finalize selective demolition schedule and verify availability of materials,
62 demolition personnel, equipment, and facilities needed to make progress and avoid
63 delays.
- 64 4. Review requirements of work performed by other trades that rely on substrates exposed
65 by selective demolition operations.
- 66 5. Review areas where existing construction is to remain and requires protection.

- 67 1.7 PROJECT CONDITIONS
- 68 A. Owner will occupy portions of building immediately adjacent to selective demolition area.
69 Conduct selective demolition so Owner's operations will not be disrupted.
- 70 B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as
71 far as practical.
- 72 1. Before selective demolition, Owner will remove the following items:
- 73 a. Furniture
- 74 C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding
75 with selective demolition.
- 76 D. Hazardous Materials: Hazardous materials are present in construction to be selectively
77 demolished. A report on the presence of hazardous materials is on file for review and use.
78 Examine report to become aware of locations where hazardous materials are present.
- 79 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
80 2. Do not disturb hazardous materials or items suspected of containing hazardous materials
81 except under procedures specified elsewhere in the Contract Documents.
82 3. The Owner has engaged F&ME to provide instructions on hazardous material abatement.
83 Those instructions are documented in drawings and specifications which are part of this
84 contract for construction. Co-ordinate abatement efforts directly w/ F&ME and follow
85 their instructions as the Owner's direct agent.
- 86 E. Storage or sale of removed items or materials on-site is not permitted.
- 87 F. Utility Service: Maintain existing utilities indicated to remain in service and protect them
88 against damage during selective demolition operations.
- 89 1. Maintain fire-protection facilities in service during selective demolition operations.
- 90 G. The building's chilled water loop and the building's fire water loop must be modified during
91 this project. Both are required to be on line during all building occupancy. Provide a minimum
92 of 14 calendar days notice to USC's Project Manager for service interruption with anticipated
93 durations. Be prepared to perform work over weekends or Holidays/weekends when building is
94 least likely to be occupied.
- 95 1.8 WARRANTY
- 96 A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged
97 during selective demolition, by methods and with materials so as not to void existing warranties.

98 PART 2 - PRODUCTS (Not Used)

99 PART 3 - EXECUTION

100 3.1 EXAMINATION

101 A. Verify that utilities have been disconnected and capped.

102 B. Survey existing conditions and correlate with requirements indicated to determine extent of
103 selective demolition required.

104 C. Inventory and record the condition of items to be removed and reinstalled and items to be
105 removed and salvaged.

106 D. When unanticipated mechanical, electrical, or structural elements that conflict with intended
107 function or design are encountered, investigate and measure the nature and extent of conflict.
108 Promptly submit a written report to Architect.

109 E. Survey of Existing Conditions: Record existing conditions by use of [**measured drawings**]
110 [**preconstruction photographs**] [**preconstruction videotapes**] [**and**] [**templates**].

111 F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition
112 activities.

113 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

114 A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them
115 against damage during selective demolition operations.

116 B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility
117 services and mechanical/electrical systems serving areas to be selectively demolished.

118 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.

119 2. Arrange to shut off indicated utilities with utility companies.

120 3. If services/systems are required to be removed, relocated, or abandoned, before
121 proceeding with selective demolition provide temporary services/systems that bypass
122 area of selective demolition and that maintain continuity of services/systems to other
123 parts of building.

124 4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal
125 remaining portion of pipe or conduit after bypassing.

126 a. Where entire wall is to be removed, existing services/systems may be removed
127 with removal of the wall.

- 128 3.3 PREPARATION
- 129 A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal
130 operations to ensure minimum interference with roads, streets, walks, walkways, and other
131 adjacent occupied and used facilities.
- 132 B. Temporary Facilities: Provide temporary barricades and other protection required to prevent
133 injury to people and damage to adjacent buildings and facilities to remain.
- 134 1. Provide protection to ensure safe passage of people around selective demolition area and
135 to and from occupied portions of building.
- 136 2. Provide temporary weather protection, during interval between selective demolition of
137 existing construction on exterior surfaces and new construction, to prevent water leakage
138 and damage to structure and interior areas.
- 139 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are
140 exposed during selective demolition operations.
- 141 C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required
142 to preserve stability and prevent movement, settlement, or collapse of construction and finishes
143 to remain, and to prevent unexpected or uncontrolled movement or collapse of construction
144 being demolished.
- 145 1. Strengthen or add new supports when required during progress of selective demolition.
- 146 3.4 SELECTIVE DEMOLITION, GENERAL
- 147 A. General: Demolish and remove existing construction only to the extent required by new
148 construction and as indicated. Use methods required to complete the Work within limitations of
149 governing regulations and as follows:
- 150 1. Proceed with selective demolition systematically, from higher to lower level. Complete
151 selective demolition operations above each floor or tier before disturbing supporting
152 members on the next lower level.
- 153 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use
154 cutting methods least likely to damage construction to remain or adjoining construction.
155 Use hand tools or small power tools designed for sawing or grinding, not hammering and
156 chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to
157 remain.
- 158 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring
159 existing finished surfaces.
- 160 4. Do not use cutting torches until work area is cleared of flammable materials. At
161 concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden
162 space before starting flame-cutting operations. Maintain portable fire-suppression
163 devices during flame-cutting operations.
- 164 5. Maintain adequate ventilation when using cutting torches.
- 165 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and
166 promptly dispose of off-site.
- 167 7. Remove structural framing members and lower to ground by method suitable to avoid
168 free fall and to prevent ground impact or dust generation.

- 169 8. Locate selective demolition equipment and remove debris and materials so as not to
170 impose excessive loads on supporting walls, floors, or framing.
171 9. Dispose of demolished items and materials promptly.
- 172 B. Removed and Salvaged Items:
- 173 1. Clean salvaged items.
174 2. Pack or crate items after cleaning. Identify contents of containers.
175 3. Store items in a secure area until delivery to Owner.
176 4. Transport items to Owner's storage area on-site.
177 5. Protect items from damage during transport and storage.
- 178 C. Removed and Reinstalled Items:
- 179 1. Clean and repair items to functional condition adequate for intended reuse. Paint
180 equipment to match new equipment.
181 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
182 3. Protect items from damage during transport and storage.
183 4. Reinstall items in locations indicated. Comply with installation requirements for new
184 materials and equipment. Provide connections, supports, and miscellaneous materials
185 necessary to make item functional for use indicated.
- 186 D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling
187 during selective demolition. When permitted by Architect, items may be removed to a suitable,
188 protected storage location during selective demolition[**and cleaned**] and reinstalled in their
189 original locations after selective demolition operations are complete.
- 190 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
- 191 A. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch (19 mm) at
192 junctures with construction to remain, using power-driven saw. Dislodge concrete from
193 reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove
194 remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions
195 indicated.
- 196 B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to
197 remain and at regular intervals, using power-driven saw, then remove concrete between saw
198 cuts.
- 199 C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain,
200 using power-driven saw, then remove masonry between saw cuts.
- 201 D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and
202 remove.
- 203 E. Resilient Floor Coverings: Remove floor coverings and adhesive according to
204 recommendations in RFCI-WP and its Addendum.
- 205 1. Remove residual adhesive and prepare substrate for new floor coverings by one of the
206 methods recommended by RFCI.

- 207 F. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.
- 208 3.6 DISPOSAL OF DEMOLISHED MATERIALS
- 209 A. General: Except for items or materials indicated to be[**recycled,**] reused, salvaged, reinstalled,
210 or otherwise indicated to remain Owner's property, remove demolished materials from Project
211 site and legally dispose of them in an EPA-approved landfill.
- 212 1. Do not allow demolished materials to accumulate on-site.
213 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces
214 and areas.
- 215 B. Burning: Do not burn demolished materials.
- 216 C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
- 217 3.7 CLEANING
- 218 A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective
219 demolition operations. Return adjacent areas to condition existing before selective demolition
220 operations began.
- 221 3.8 SELECTIVE DEMOLITION SCHEDULE
- 222 A. Existing **Construction** to Be Removed: Include but are not limited to Aluminum storefront and
223 glazing, drywall and stud partitions, masonry partitions, acoustical panel ceilings and related
224 electrical, mechanical and plumbing systems. See also D1-D5 drawings.
- 225 B. Existing Items to Be Removed and Salvaged: brick pavers
- 226 C. Existing Items to Be Removed and Reinstalled: brick pavers
- 227 END OF SECTION 024119

1 SECTION 033000 - CAST-IN-PLACE CONCRETE

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete
8 materials, mixture design, placement procedures, and finishes, for the following:
9 1. Concrete toppings.

10 1.3 DEFINITIONS

- 11 A. Cementitious Materials: Portland cement alone or in combination with one or more of the
12 following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-
13 furnace slag, and silica fume; subject to compliance with requirements.

14 1.4 SUBMITTALS

- 15 A. Product Data: For each type of product indicated.
- 16 B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when
17 characteristics of materials, Project conditions, weather, test results, or other circumstances
18 warrant adjustments.
- 19 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- 20 C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and
21 placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar
22 diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing,
23 and supports for concrete reinforcement.
- 24 D. Material Test Reports: For the following, from a qualified testing agency, indicating
25 compliance with requirements:
- 26 1. Aggregates.
- 27 E. Material Certificates: For each of the following, signed by manufacturers:
- 28 1. Cementitious materials.
29 2. Admixtures.
30 3. Form materials and form-release agents.

- 31 4. Fiber reinforcement.
- 32 5. Bonding agents.
- 33 6. Adhesives.
- 34 7. Semirigid joint filler.
- 35 8. Joint-filler strips.

36 1.5 QUALITY ASSURANCE

- 37 A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as
38 ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified
39 Concrete Flatwork Technician.
- 40 B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete
41 products and that complies with ASTM C 94/C 94M requirements for production facilities and
42 equipment.
- 43 C. Source Limitations: Obtain each type or class of cementitious material of the same brand from
44 the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through
45 one source from a single manufacturer.

46 1.6 DELIVERY, STORAGE, AND HANDLING

- 47 A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and
48 damage

49 PART 2 - PRODUCTS

50 2.1 MANUFACTURERS

- 51 A. In other Part 2 articles where titles below introduce lists, the following requirements apply to
52 product selection:
 - 53 1. Available Products: Subject to compliance with requirements, products that may be
54 incorporated into the Work include, but are not limited to, products specified.
 - 55 2. Available Manufacturers: Subject to compliance with requirements, manufacturers
56 offering products that may be incorporated into the Work include, but are not limited to,
57 manufacturers specified.

58 2.2 FORM-FACING MATERIALS

- 59 A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and
60 smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 61 1. Plywood, metal, or other approved panel materials.

62 B. Form-Release Agent: Commercially formulated form-release agent that will not bond with,
63 stain, or adversely affect concrete surfaces and will not impair subsequent treatments of
64 concrete surfaces.

65 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

66 2.3 CONCRETE MATERIALS

67 A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and
68 source, throughout Project:

69 1. Portland Cement: ASTM C 150, Type I, gray .

70 a. Fly Ash: ASTM C 618,

71 b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

72 B. Lightweight Aggregate: ASTM C 330, 1-inch (25-mm) nominal maximum aggregate size.

73 C. Water: ASTM C 94/C 94M and potable.

74 2.4 ADMIXTURES

75 A. Air-Entraining Admixture: ASTM C 260.

76 B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with
77 other admixtures and that will not contribute water-soluble chloride ions exceeding those
78 permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium
79 chloride.

80 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

81 2. Retarding Admixture: ASTM C 494/C 494M, Type B.

82 2.5 FIBER REINFORCEMENT

83 A. Synthetic Fiber: [**Monofilament**] [**or**] [**fibrillated**] polypropylene fibers engineered and
84 designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2
85 inches (13 to 38 mm) long.

86 1. Products:

87 a. Monofilament Fibers:

88 1) Axim Concrete Technologies; Fibrasol IIP.

89 2) Euclid Chemical Company (The); Fiberstrand 100.

90 3) FORTA Corporation; Forta Mono.

91 4) Grace Construction Products, W. R. Grace & Co.; Grace MicroFiber.

92 5) Metalcrete Industries; Polystrand 1000.

93 6) SI Concrete Systems; Fibermix Stealth.

- 94 b. Fibrillated Fibers:
- 95 1) Axim Concrete Technologies; Fibrasol F.
- 96 2) Euclid Chemical Company (The); Fiberstrand F.
- 97 3) FORTA Corporation; Forta.
- 98 4) Grace Construction Products, W. R. Grace & Co.; Grace Fibers.
- 99 5) SI Concrete Systems; Fibermesh.

100 2.6 RELATED MATERIALS

- 101 A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber
102 or ASTM D 1752, cork or self-expanding cork.
- 103 B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a
104 Type A shore durometer hardness of 80 aromatic polyurea with a Type A shore durometer
105 hardness range of 90 to 95 per ASTM D 2240.
- 106 C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene
107 butadiene.

108 2.7 CONCRETE MIXTURES, GENERAL

- 109 A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of
110 laboratory trial mixture or field test data, or both, according to ACI 301.
- 111 1. Use a qualified independent testing agency for preparing and reporting proposed mixture
112 designs based on laboratory trial mixtures.
- 113 B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than
114 portland cement in concrete as follows:
- 115 1. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent
116 portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
- 117 C. Limit water-soluble, chloride-ion content in hardened concrete to **[0.06] [0.15] [0.30] [1.00]**
118 percent by weight of cement.
- 119 D. Admixtures: Use admixtures according to manufacturer's written instructions.
- 120 1. Use water-reducing admixture in concrete, as required, for placement and workability.
- 121 2. Use water-reducing and retarding admixture when required by high temperatures, low
122 humidity, or other adverse placement conditions.

123 2.8 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- 124 A. Concrete Toppings: Proportion normal-weight concrete mixture as follows:
- 125 1. Minimum Compressive Strength: 2500 psi at 28 days.

- 126 2. Minimum Cementitious Materials Content: [470 lb/cu. yd. (279 kg/cu. m)] [520 lb/cu.
127 yd. (309 kg/cu. m)] [540 lb/cu. yd. (320 kg/cu. m)].
128 3. Slump Limit: 4 inches (100 mm) .

129 2.9 CONCRETE MIXING

130 A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to
131 ASTM C 94/C 94M[**and ASTM C 1116**], and furnish batch ticket information.

- 132 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and
133 delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32
134 deg C), reduce mixing and delivery time to 60 minutes.

135 PART 3 - EXECUTION

136 3.1 FORMWORK

137 A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical,
138 lateral, static, and dynamic loads, and construction loads that might be applied, until structure
139 can support such loads.

140 B. Construct formwork so concrete members and structures are of size, shape, alignment,
141 elevation, and position indicated, within tolerance limits of ACI 117.

142 C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:

- 143 1. **Class A**, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
144

145 D. Construct forms tight enough to prevent loss of concrete mortar.

146 E. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
147 Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide
148 top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

- 149 1. Install keyways, reglets, recesses, and the like, for easy removal.
150 2. Do not use rust-stained steel form-facing material.

151 F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required
152 elevations and slopes in finished concrete surfaces. Provide and secure units to support screed
153 strips; use strike-off templates or compacting-type screeds.

154 G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork
155 is inaccessible. Close openings with panels tightly fitted to forms and securely braced to
156 prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous
157 locations.

158 H. Do not chamfer exterior corners and edges of permanently exposed concrete.

- 159 I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads
160 required in the Work. Determine sizes and locations from trades providing such items.
- 161 J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and
162 other debris just before placing concrete.
- 163 K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and
164 maintain proper alignment.
- 165 L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written
166 instructions, before placing reinforcement.
- 167 3.2 EMBEDDED ITEMS
- 168 A. Place and secure anchorage devices and other embedded items required for adjoining work that
169 is attached to or supported by cast-in-place concrete. Use setting drawings, templates,
170 diagrams, instructions, and directions furnished with items to be embedded.
- 171 1. Install anchor rods, accurately located, to elevations required and complying with
172 tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and
173 Bridges."
174 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face
175 of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and
176 other conditions.
177 3. Install dovetail anchor slots in concrete structures as indicated.
- 178 3.3 REMOVING AND REUSING FORMS
- 179 A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does
180 not support weight of concrete may be removed after cumulatively curing at not less than 50
181 deg F (10 deg C) for [24] <Insert number> hours after placing concrete, if concrete is hard
182 enough to not be damaged by form-removal operations and curing and protection operations are
183 maintained.
- 184 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports
185 weight of concrete in place until concrete has achieved[**at least 70 percent of**] its 28-day
186 design compressive strength.
187 2. Remove forms only if shores have been arranged to permit removal of forms without
188 loosening or disturbing shores.
- 189 B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or
190 otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply
191 new form-release agent.
- 192 C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
193 Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete
194 surfaces unless approved by Architect.

- 195 3.4 JOINTS
- 196 A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- 197 B. Construction Joints: Install so strength and appearance of concrete are not impaired, at
198 locations indicated or as approved by Architect.
- 199 1. Place joints perpendicular to main reinforcement. Continue reinforcement across
200 construction joints, unless otherwise indicated. Do not continue reinforcement through
201 sides of strip placements of floors and slabs.
- 202 2. Use a bonding agent at locations where fresh concrete is placed against hardened or
203 partially hardened concrete surfaces.
- 204 3. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened
205 or partially hardened concrete surfaces.
- 206 3.5 CONCRETE PLACEMENT
- 207 A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded
208 items is complete and that required inspections have been performed.
- 209 B. Do not add water to concrete during delivery, at Project site, or during placement unless
210 approved by Architect.
- 211 C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new
212 concrete will be placed on concrete that has hardened enough to cause seams or planes of
213 weakness. If a section cannot be placed continuously, provide construction joints as indicated.
214 Deposit concrete to avoid segregation.
- 215 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures
216 and in a manner to avoid inclined construction joints.
- 217 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- 218 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators
219 vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6
220 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of
221 concrete that have begun to lose plasticity. At each insertion, limit duration of vibration
222 to time necessary to consolidate concrete and complete embedment of reinforcement and
223 other embedded items without causing mixture constituents to segregate.
- 224 D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of
225 construction joints, until placement of a panel or section is complete.
- 226 1. Consolidate concrete during placement operations so concrete is thoroughly worked
227 around reinforcement and other embedded items and into corners.
- 228 2. Maintain reinforcement in position on chairs during concrete placement.
- 229 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
- 230 4. Slope surfaces uniformly to drains where required.
- 231 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured
232 surface plane, before excess bleedwater appears on the surface. Do not further disturb
233 slab surfaces before starting finishing operations.

- 234 E. Hot-Weather Placement: Comply with ACI 301 and as follows:
- 235 1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled
236 mixing water or chopped ice may be used to control temperature, provided water
237 equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to
238 cool concrete is Contractor's option.
- 239 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep
240 subgrade uniformly moist without standing water, soft spots, or dry areas.
- 241 3.6 FINISHING FORMED SURFACES
- 242 A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in
243 an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and
244 defects. Remove fins and other projections that exceed specified limits on formed-surface
245 irregularities.
- 246 3.7 FINISHING FLOORS AND SLABS
- 247 A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and
248 finishing operations for concrete surfaces. Do not wet concrete surfaces.
- 249 B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small
250 or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots.
251 Repeat float passes and restraightening until surface is left with a uniform, smooth, granular
252 texture.
- 253 1. Apply float finish to surfaces **[indicated] [to receive trowel finish] [and] [to be covered**
254 **with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-**
255 **bed terrazzo] <Insert locations>.**
- 256 C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by
257 hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of
258 trowel marks and uniform in texture and appearance. Grind smooth any surface defects that
259 would telegraph through applied coatings or floor coverings.
- 260 1. Apply a trowel finish to surfaces **[indicated] [exposed to view] [or] [to be covered with**
261 **resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane,**
262 **paint, or another thin-film-finish coating system] <Insert locations>.**
- 263 2. Finish surfaces to the following tolerances, according to ASTM E 1155
264 (ASTM E 1155M), for a randomly trafficked floor surface:
- 265 3. Finish and measure surface so gap at any point between concrete surface and an
266 unlevelled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and
267 placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

- 268 3.8 MISCELLANEOUS CONCRETE ITEMS
- 269 A. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as
270 shown on Drawings. Set anchor bolts for machines and equipment at correct elevations,
271 complying with diagrams or templates from manufacturer furnishing machines and equipment.
- 272 3.9 CONCRETE PROTECTING AND CURING
- 273 A. General: Protect freshly placed concrete from premature drying and excessive cold or hot
274 temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-
275 weather protection during curing.
- 276 B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or
277 windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and
278 during finishing operations. Apply according to manufacturer's written instructions after
279 placing, screeding, and bull floating or darbying concrete, but before float finishing.
- 280 C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed
281 surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- 282 D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
- 283 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the
284 following materials:
- 285 a. Water.
286 b. Continuous water-fog spray.
287 c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete
288 surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
- 289 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining
290 cover for curing concrete, placed in widest practicable width, with sides and ends lapped
291 at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less
292 than seven days. Immediately repair any holes or tears during curing period using cover
293 material and waterproof tape.
- 294 a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive
295 floor coverings.
296 b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive
297 penetrating liquid floor treatments.
298 c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining
299 cover or a curing compound that the manufacturer certifies will not interfere with
300 bonding of floor covering used on Project..
- 301 3.10 FIELD QUALITY CONTROL
- 302 A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and
303 inspections and to submit reports.

- 304 B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to
305 ASTM C 172 shall be performed according to the following requirements:
- 306 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete
307 mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for
308 each additional 50 cu. yd. (38 cu. m) or fraction thereof.
- 309 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m)
310 or fraction thereof of each concrete mixture placed each day.
- 311 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample,
312 but not less than one test for each day's pour of each concrete mixture. Perform
313 additional tests when concrete consistency appears to change.
- 314 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is
315 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test
316 for each composite sample.
- 317 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test
318 for each composite sample, but not less than one test for each day's pour of each concrete
319 mixture.
- 320 6. Compression Test Specimens: ASTM C 31/C 31M.
321 a. Cast and field cure [**two**] <Insert number> sets of two standard cylinder
322 specimens for each composite sample.
- 323 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured
324 specimens at 7 days and one set of two specimens at 28 days.
- 325 a. Test one set of two field-cured specimens at 7 days and one set of two specimens
326 at 28 days.
- 327 b. A compressive-strength test shall be the average compressive strength from a set of
328 two specimens obtained from same composite sample and tested at age indicated.
- 329 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-
330 cured cylinders, Contractor shall evaluate operations and provide corrective procedures
331 for protecting and curing in-place concrete.
- 332 9. Strength of each concrete mixture will be satisfactory if every average of any three
333 consecutive compressive-strength tests equals or exceeds specified compressive strength
334 and no compressive-strength test value falls below specified compressive strength by
335 more than **500 psi (3.4 MPa)**.
- 336 10. Test results shall be reported in writing to Architect, concrete manufacturer, and
337 Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain
338 Project identification name and number, date of concrete placement, name of concrete
339 testing and inspecting agency, location of concrete batch in Work, design compressive
340 strength at 28 days, concrete mixture proportions and materials, compressive breaking
341 strength, and type of break for both 7- and 28-day tests.
- 342 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may
343 be permitted by Architect but will not be used as sole basis for approval or rejection of
344 concrete.
- 345 12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete
346 when test results indicate that slump, air entrainment, compressive strengths, or other
347 requirements have not been met, as directed by Architect. Testing and inspecting agency
348 may conduct tests to determine adequacy of concrete by cored cylinders complying with
349 ASTM C 42/C 42M or by other methods as directed by Architect.

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- 350 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine
351 compliance of replaced or additional work with specified requirements.
352 14. Correct deficiencies in the Work that test reports and inspections indicate dos not comply
353 with the Contract Documents.

354 END OF SECTION 033000

1
2 **SECTION 047310**
3 **QUARTZ SURFACE FABRICATIONS**

4
5 **PART 1 — GENERAL**

6
7 **1.1 RELATED DOCUMENTS**

- 8 A. Drawings and general provisions of the contract, including general and supplementary
9 conditions and Division 1 Specification Sections, apply to this Section.

10
11 **1.2 SUMMARY**

- 12 A. This Section includes the following horizontal and trim quartz surface product types:

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15 1. Countertops with undermount bowls

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18 **1.3 SUBMITTALS**

19 A. Product data:

- 20 1. For each type of product indicated.

21 B. Shop drawings:

- 22 1. Show location of each item, dimensioned plans and elevations, large-scale
23 details, attachment devices and other components.
24 a. Show the following:
25 1) Full-size details, edge details, attachments, etc.
26 2) Locations and sizes of furring, blocking, including concealed
27 blocking and reinforcement specified in other Sections.
28 3) Locations and sizes of cutouts and holes for plumbing fixtures,
29 faucets, soap dispensers, waste receptacle and other items
30 installed in quartz surface.
31 4) Seam locations.

32
33 C. Samples:

- 34 1. For each type of product indicated:
35 a. Submit minimum 6-inch by 6-inch sample in specified color.
36 b. Cut sample and seam together for representation of seaming
37 techniques.
38 c. Indicate full range of color and pattern variation.
39 2. Approved samples will be retained as a standard for work.

40 D. Product data:

- 41 1. Indicate product description, fabrication information and compliance with
42 specified performance requirements.

43 E. Product certificates:

- 44 1. For each type of product, signed by product manufacturer.

45
46 F. Fabricator/installer qualifications:

- 47 1. Provide copy of certification number.

48 G. Manufacturer certificates:

- 49 1. Signed by manufacturers certifying that they comply with requirements.

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51 H. Maintenance data:

- 52 1. Submit manufacturer's care and maintenance data.
53 a. Maintenance kit for finishes shall be submitted.
54 2. Include in project closeout documents.

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1.4 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/installer qualifications:
 - 1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.
- C. Applicable standards:
 - 1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - d. NSF International
 - 2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E 84) or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - b. Flame Spread Index: 25 or less.
 - c. Smoke Developed Index: 450 or less.
- D. Allowable tolerances:
 - 1. Variation in component size: $\pm 1/8"$ (3 mm) over a 10' length.
 - 2. Location of openings: $\pm 1/8"$ (3 mm) from indicated location.
 - 3. Maximum $1/8"$ (3 mm) clearance between quartz surfaces and each wall.

**DELETE BELOW IF COMPLEXITY OF PROJECT
DOES NOT REQUIRE COORDINATION DRAWINGS.**

- E. Coordination drawings:
 - 1. Shall be prepared indicating:
 - a. Plumbing work.
 - b. Electrical work.
 - c. Miscellaneous steel for the general work.
 - d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
 - 2. Content:
 - a. Project-specific information, drawn accurately to scale.
 - b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
 - 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.
 - d. Provide alternate sketches to designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
 - 3. Drawings shall:
 - a. Be produced in $1/2"$ scale for all fabricated items.
 - 4. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.
 - a. No review or approval will be forthcoming.
 - b. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.

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1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.6 WARRANTY

- A. Provide manufacturer's 10-year warranty against defects in materials.
 - 1. Warranty shall provide material to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

1.7 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 — PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the requirements, provide the following product:
 - 1. Zodiaq® quartz surfaces from DuPont (basis of design)
 - 2. Silestone by Cosentino Caesarstone by Casesarstone Australia Ltd.

2.2 MATERIALS

- A. Material:
 - 1. Homogeneous quartz surfaces material.
 - 2. Material shall have minimum physical and performance properties specified.
- B. Thickness:
 - 1. 3 cm (1 1/8").
- C. Edge treatment:
 - 1. ¼" champher top and bottom.
- D. Seam width:
 - 1. <1/8" unless otherwise specified.
- E. Sink mounting:
 - 1. Undermount.
- F. Backsplash: 3 cm 6" tall
 - 1. Applied. Matching countertops
- G. Endsplash: - 3 cm 6" tall
 - 1. Applied. Matching countertop
- H. Performance characteristics: Zodiaq® physical properties data sheet:

Property Procedure	Typical Result	Test	
168			
169			
170			
171	Flexural Strength	>5,300 psi	ASTM D 790
172	Flexural Modulus	5.3–5.7E ⁶ psi	ASTM D 790
173	Flexural Elongation	>0.1%	ASTM D 790
174	Compression Strength (Dry)	~27,000 psi	ASTM C 170
175	Compression Strength (Wet)	~24,000 psi	ASTM C 170
176	Hardness	7	Mohs' Hardness Scale
177	Thermal Expansion	1.45 x 10 ⁻⁵ in./in./°C	ASTM D 696
178	Gloss (60° Gardner)	45–50	ANSI Z 124
179	Colorfastness	Passes	ANSI Z 124.6.5.1
180	Wear and Cleanability	Passes	ANSI Z 124.6.5.3
181	Stain Resistance	Passes	ANSI Z 124.6
182			(stain 5.2,
183			chemical 5.5,
184			cigarette 5.4
185			resistances)
186	Fungal and Bacterial Resistance	No growth	ASTM G 21 & G 22
187	High Temperature	None to slight effect	NEMA LD 3.3.6*
188	Resistance (356°F)		
189	Boiling Water Resistance	None to slight effect	NEMA LD 3.3.5*
190	Freeze-Thaw Cycling	Unaffected	ASTM C 1026
191	Point Impact	Passes	ANSI Z 124.6.4.2
192	Ball Impact	164 inches	NEMA LD 3.3.8*
193	Slip Resistance	Above 0.80 for textured models	ASTM C 1028
194	Static Coefficient of Friction	0.89/0.61 (wet/dry)	ASTM C 1028
195	(as received)		
196	Static Coefficient of Friction	0.87/0.65 (wet/dry)	ASTM C 1028
197	(with renovator)		
198	Abrasion Resistance	139	ASTM C 501
199	Specific Gravity	2.44	ASTM D 792
200	Density	~2400 kg/m ³	
201	Water Absorption	0.12%	ASTM C 373
202	Long- and Short-Term	<0.04%	ASTM D 570
203	Moisture Expansion	<0.01% on average	ASTM C 370
204	Toxicity	Passes, LC50=68–128	Pittsburgh Protocol
205	Flammability	For all colors tested	ASTM E 84,
206			UL 723
207		(Class I and Class A)	and NFPA 255
208	Flame Spread Index	FSI <10 for 3 cm and <15 for 2 cm	
209	Smoke Developed Index	SDI <50 for 3 cm and <100 for 2 cm	
210	Nominal Thickness	2 cm and 3 cm	
211	Nominal Weight	10 lb./ft. ² (2 cm)	
212		15 lb./ft. ² (3 cm)	

* NEMA results based on the NEMA LD 3-2000

2.3 ACCESSORY PRODUCTS

A. Joint adhesive:

1. DuPont-approved adhesive to create color-matched seam.

B. Sink/bowl mounting hardware:

1. Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of undermount sinks/bowls.

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2.4 FACTORY FABRICATION

A. Shop assembly

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
2. Form joints between components using manufacturer's standard joint adhesive joints.
 - a. Reinforce as required.
3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.

2.5 FINISHES

- A. Select from the manufacturer's standard color chart.

PART 3 — EXECUTION

3.1 INSTALLATION

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
 1. Tops:
 - a. Flat and true to within 1/8" (3 mm) of a flat surface over a 10' length.
 - b. Allow a minimum of 1/16" to a maximum of 1/8" (3 mm) clearance between surface and each wall.
- B. Form field joints using manufacturer's recommended adhesive, with joint widths no greater than 1/8" (3 mm) in finished work.
 1. Keep components and hands clean when making joints.
- C. Sinks:
 1. Adhere undermount sinks/bowls to countertops using manufacturer's recommended adhesive and mounting hardware.
- D. Provide backsplashes and endsplashes as indicated on the drawings.
 1. Adhere to countertops using manufacturer's standard color-matched silicone sealant.
- E. Keep components and hands clean during installation.
 1. Remove adhesives, sealants and other stains.
 2. Components shall be clean on date of substantial completion.

3.2 CLEANING AND PROTECTION

- A. Keep components clean during installation.
 1. Remove adhesives, sealants and other stains.
- B. Protect surfaces from damage until date of substantial completion.
 1. Replace damaged work.

END OF SECTION 04731

1 SECTION 064023 - INTERIOR ARCHITECTURAL WOODWORK

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 B. Section 04731 "Quartz Surface Fabrications" for countertops installed over Interior
7 Architectural Woodwork.

8 1.2 SUMMARY

9 A. This Section includes the following:
10 1. Plastic-laminate cabinets.

11 1.3 DEFINITIONS

12 A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for
13 installing woodwork items unless concealed within other construction before woodwork
14 installation.

15 1.4 SUBMITTALS

16 A. Product Data: For each type of product indicated, including cabinet hardware and accessories.

17 B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale
18 details, attachment devices, and other components.

19 1. Show details full size.

20 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed
21 blocking and reinforcement specified in other Sections.

22 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and other
23 items installed in architectural woodwork.

24 C. Samples for Initial Selection:

25 1. Plastic laminates.

26 2. PVC edge material.

27 3. Thermoset decorative panels.

28 D. Product Certificates: For each type of product, signed by product manufacturer.

29 E. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program
30 certificates.

- 31 F. Qualification Data: For fabricator.
- 32 1.5 QUALITY ASSURANCE
- 33 A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products
34 similar to those required for this Project and whose products have a record of successful in-
35 service performance. Shop is a certified participant in AWI's Quality Certification Program.
- 36 B. Installer Qualifications: Fabricator of products.
- 37 C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork
38 Quality Standards" for grades of interior architectural woodwork indicated for construction,
39 finishes, installation, and other requirements.
- 40 1. Provide AWI Quality Certification Program certificates indicating that
41 woodwork, including installation, complies with requirements of grades specified.
- 42 1.6 DELIVERY, STORAGE, AND HANDLING
- 43 A. Do not deliver woodwork until painting and similar operations that could damage woodwork
44 have been completed in installation areas. If woodwork must be stored in other than installation
45 areas, store only in areas where environmental conditions comply with requirements specified
46 in "Project Conditions" Article.
- 47 1.7 PROJECT CONDITIONS
- 48 A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet
49 work is complete, and HVAC system is operating and maintaining temperature and relative
50 humidity at occupancy levels during the remainder of the construction period.
- 51 B. Field Measurements: Where woodwork is indicated to fit to other construction, verify
52 dimensions of other construction by field measurements before fabrication, and indicate
53 measurements on Shop Drawings. Coordinate fabrication schedule with construction progress
54 to avoid delaying the Work.
- 55 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field
56 measurements before being enclosed, and indicate measurements on Shop Drawings.
- 57 2. Established Dimensions: Where field measurements cannot be made without delaying
58 the Work, establish dimensions and proceed with fabricating woodwork without field
59 measurements. Provide allowance for trimming at site, and coordinate construction to
60 ensure that actual dimensions correspond to established dimensions.
- 61 1.8 COORDINATION
- 62 A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related
63 units of Work specified in other Sections to ensure that interior architectural woodwork can be
64 supported and installed as indicated.

65 PART 2 - PRODUCTS

66 2.1 MATERIALS

67 A. General: Provide materials that comply with requirements of [AWI's] [WI's] quality standard
68 for each type of woodwork and quality grade specified, unless otherwise indicated.

69 B. Wood Products: Comply with the following:

70 C. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with
71 thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

72 1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components
73 with exposed or semiexposed edges.

74 D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as
75 required by woodwork quality standard.

76 1. Available Manufacturers: Subject to compliance with requirements, manufacturers
77 offering high-pressure decorative laminates that may be incorporated into the Work
78 include, but are not limited to, the following:

79 2. Manufacturer: Subject to compliance with requirements, provide high-pressure
80 decorative laminates by one of the following:

81 a. Formica Corporation.

82 b. Lamin-Art, Inc.

83 c. Nevamar Company, LLC; Decorative Products Div.

84 d. Wilsonart International; Div. of Premark International, Inc.

85 2.2 CABINET HARDWARE AND ACCESSORIES

86 A. General: Provide cabinet hardware and accessory materials associated with architectural
87 cabinets.

88 B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, [100] [135] [170]
89 degrees of opening[, self-closing].

90 C. Wire Pulls: Back mounted, solid metal, plastic, [4 inches (100 mm) long, 5/16 inch (8 mm) in
91 diameter].

92 D. Adjustable Shelf Standards and Supports: [BHMA A156.9, B04071; with shelf rests, B04081].

93 E. Drawer Slides: BHMA A156.9, B05091.

94 1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension full-
95 overtravel-extension type; zinc-plated steel ball-bearing slides.

96 2. Box Drawer Slides: [Grade 1] [Grade 1HD-100]; for drawers not more than 6 inches
97 (150 mm) high and 24 inches (600 mm) wide.

98 F. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with
99 BHMA A156.18 for BHMA finish number indicated.

- 100 1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
- 101 G. For concealed hardware, provide manufacturer's standard finish that complies with product class
102 requirements in BHMA A156.9.
- 103 2.3 MISCELLANEOUS MATERIALS
- 104 A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less
105 than 15 percent moisture content.
- 106 B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.
107 Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior
108 walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead
109 expansion sleeves for drilled-in-place anchors.
- 110 C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- 111 D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with
112 the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA
113 Method 24):
- 114 1. Wood Glues: 30 g/L.
115 2. Contact Adhesive: 250 g/L.
- 116 E. Adhesive for Bonding Plastic Laminate: Contact cement .
- 117 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.
- 118 2.4 FABRICATION, GENERAL
- 119 A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior
120 woodwork complying with referenced quality standard.
- 121 B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood
122 moisture content in relation to ambient relative humidity during fabrication and in installation
123 areas.
- 124 C. Complete fabrication, including assembly and hardware application, to maximum extent
125 possible before shipment to Project site. Disassemble components only as necessary for
126 shipment and installation. Where necessary for fitting at site, provide ample allowance for
127 scribing, trimming, and fitting.
- 128 1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled.
129 Install dowels, screws, bolted connectors, and other fastening devices that can be
130 removed after trial fitting. Verify that various parts fit as intended and check
131 measurements of assemblies against field measurements indicated on Shop Drawings
132 before disassembling for shipment.
- 133 D. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing
134 fixtures, electrical work, and similar items. Locate openings accurately and use templates or

- 135 roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts
136 to remove splinters and burrs.
- 137 1. Seal edges of openings in countertops with a coat of varnish.
- 138 2.5 PLASTIC-LAMINATE CABINETS
- 139 A. Grade: Custom.
- 140 B. AWI Type of Cabinet Construction: Flush overlay.
- 141 C. WI Construction Style: Style A, Frameless.
- 142 D. WI Construction Type: Type I, multiple self-supporting units rigidly joined together.
- 143 E. WI Door and Drawer Front Style: Flush overlay.
- 144 F. Reveal Dimension: 1/8".
- 145 G. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with
146 the following requirements:
- 147 1. Horizontal Surfaces Other Than Tops: Grade HGL.
- 148 2. Vertical Surfaces: Grade VGS.
- 149 3. Edges: PVC tape, 0.018-inch (0.460-mm) minimum thickness, matching laminate in
150 color, pattern, and finish on body edges. PVC edge banding, 0.12 inch (3 mm) thick,
151 matching laminate in color, pattern, and finish on door edges.
- 152 H. Materials for Semiexposed Surfaces:
- 153 1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
- 154 a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch (1 mm) thick,
155 matching laminate in color, pattern, and finish].
- 156 2. Drawer Sides and Backs: Thermoset decorative panels.
- 157 3. Drawer Bottoms: Thermoset decorative panels.
- 158 I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures
159 of exposed laminate surfaces complying with the following requirements:
- 160 1. As indicated by laminate manufacturer's designations.
- 161 2. As selected by Architect from laminate manufacturer's full range in the following
162 categories:
- 163 a. Solid colors matte finish.

- 164 2.6 CLOSET AND UTILITY SHELVING
- 165 A. Wood Species: [Red oak] [Match species indicated for other types of transparent-finished
166 architectural woodwork located in same area of building, unless otherwise indicated] [Match
167 species indicated for door to closet where shelving is located] [Any closed-grain hardwood]
168 [Eastern white pine, sugar pine, or western white pine] <Insert species>.
- 169 PART 3 - EXECUTION
- 170 3.1 PREPARATION
- 171 A. Before installation, condition woodwork to average prevailing humidity conditions in
172 installation areas.
- 173 B. Before installing architectural woodwork, examine shop-fabricated work for completion and
174 complete work as required, including removal of packing and backpriming.
- 175 3.2 INSTALLATION
- 176 A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for
177 fabrication of type of woodwork involved.
- 178 B. Assemble woodwork and complete fabrication at Project site to comply with requirements for
179 fabrication in Part 2, to extent that it was not completed in the shop.
- 180 C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims.
181 Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches (3 mm in 2400
182 mm).
- 183 D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish
184 at cuts.
- 185 E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with
186 countersunk, concealed fasteners and blind nailing as required for complete installation. Use
187 fine finishing nails[or finishing screws] for exposed fastening, countersunk and filled flush
188 with woodwork and matching final finish if transparent finish is indicated.
- 189 F. Cabinets: Install without distortion so doors and drawers fit openings properly and are
190 accurately aligned. Adjust hardware to center doors and drawers in openings and to provide
191 unencumbered operation. Complete installation of hardware and accessory items as indicated.
- 192 1. Install cabinets with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or
193 other variation from a straight line.
- 194 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16
195 inches (400 mm) o.c. with [No. 10 wafer-head screws sized for 1-inch (25-mm)
196 penetration into wood framing, blocking, or hanging strips] [No. 10 wafer-head sheet
197 metal screws through metal backing or metal framing behind wall finish] [toggle bolts
198 through metal backing or metal framing behind wall finish].

- 199 G. Countertops:
- 200 1. Align adjacent quartz countertop surface and splashes countertops and form seams to
201 comply with manufacturer's written recommendations using adhesive in color to match
202 countertop. Carefully dress joints smooth, remove surface scratches, and clean entire
203 surface.
- 204 2. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow,
205 or other variation from a straight line.
- 206 3. Secure backsplashes to walls with adhesive.
- 207 4. Calk space between backsplash and wall with clear silicon.
- 208 5. Calk spare between countertops and splash with clear silicon
- 209 H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes
210 with matching filler where exposed.
- 211 3.3 ADJUSTING AND CLEANING
- 212 A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual
213 defects; where not possible to repair, replace woodwork. Adjust joinery for uniform
214 appearance.
- 215 B. Clean, lubricate, and adjust hardware.
- 216 C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to
217 restore damaged or soiled areas.
- 218 END OF SECTION 064023

1 SECTION 072413 - POLYMER-BASED EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)
2 WITH MOISTURE BARRIER.

3 PART 1 - GENERAL

4 1.1 RELATED DOCUMENTS

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

7 1.2 SUMMARY

- 8 A. Section Includes:

- 9 1. Exterior insulation and finish system (EIFS) applied over **gypsum sheathing**.

10 1.3 SYSTEM DESCRIPTION

- 11 A. Class PB EIFS: A non-load-bearing, exterior wall cladding system that consists of an insulation
12 board attached adhesively, mechanically, or both to the substrate; an integrally reinforced base
13 coat; and a textured protective finish coat.

14 1.4 PERFORMANCE REQUIREMENTS

- 15 A. EIFS Performance: Comply with the following:

- 16 1. Bond Integrity: Free from bond failure within EIFS components or between system and
17 supporting wall construction, resulting from exposure to fire, wind loads, weather, or
18 other in-service conditions.
19 2. Weathertightness: Resistant to water penetration from exterior into EIFS and assemblies
20 behind it or through them into interior of building that results in deterioration of thermal-
21 insulating effectiveness or other degradation of EIFS and assemblies behind it, including
22 substrates, supporting wall construction, and interior finish.

- 23 B. Class PB EIFS: Provide EIFS having physical properties and structural performance that
24 comply with the following:

- 25 1. Abrasion Resistance: Sample consisting of 1-inch- (25.4-mm-) thick EIFS mounted on
26 1/2-inch- (12.7-mm-) thick gypsum board; cured for a minimum of 28 days; and showing
27 no cracking, checking, or loss of film integrity after exposure to 528 quarts (500 L) of
28 sand when tested per ASTM D 968, Method A.
29 2. Absorption-Freeze Resistance: No visible deleterious effects and negligible weight loss
30 after 60 cycles per EIMA 101.01.
31 3. Accelerated Weathering: Five samples per ICC-ES AC219 showing no cracking,
32 checking, crazing, erosion, rusting, blistering, peeling, delamination, or other

- 33 characteristics that might affect performance as a wall cladding after testing for 2000
34 hours when viewed under 5 times magnification per ASTM G 153 or ASTM G 154
35 Freeze-Thaw: No surface changes, cracking, checking, crazing, erosion, rusting,
36 blistering, peeling, or delamination, or indications of delamination between components
37 when viewed under 5 times magnification after 60 cycles per EIMA 101.01 .
- 38 4. Mildew Resistance of Finish Coat: Sample applied to 2-by-2-inch (50.8-by-50.8-mm)
39 clean glass substrate, cured for 28 days, and showing no growth when tested per
40 ASTM D 3273 and evaluated according to ASTM D 3274.
 - 41 5. Salt-Spray Resistance: No deleterious affects when tested according to ICC-ES AC219.
 - 42 6. Tensile Adhesion: No failure in the EIFS, adhesive, base coat, or finish coat when tested
43 per **EIMA 101.03**.
 - 44 7. Water Penetration: Sample consisting of 1-inch- (25.4-mm-) thick EIFS mounted on 1/2-
45 inch- (12.7-mm-) thick gypsum board, cured for 28 days, and showing no water
46 penetration into the plane of the base coat to expanded-polystyrene board interface of the
47 test specimen after 15 minutes at 6.24 lbf/sq. ft. (299 Pa) of air pressure difference or 20
48 percent of positive design wind pressure, whichever is greater, across the specimen
49 during a test period when tested per EIMA 101.02.
 - 50 8. Water Resistance: Three samples, each consisting of 1-inch- (25.4-mm-) thick EIFS
51 mounted on 1/2-inch- (12.7-mm-) thick gypsum board; cured for 28 days; and showing
52 no cracking, checking, crazing, erosion, rusting, blistering, peeling, or delamination after
53 testing for 14 days per ASTM D 2247.
 - 54 9. Wind-Driven-Rain Resistance: Resist wind-driven rain according to ICC-ES AC219.
 - 55 10. Impact Resistance: Sample consisting of **1-inch- (25.4-mm-)** thick EIFS when
56 constructed, conditioned, and tested per EIMA 101.86; and meeting or exceeding the
57 following:
 - 58 a. Standard Impact Resistance: **25 to 49 inch-lb (2.8 to 5.6 J)**.
 - 59 b. High Impact Resistance: **90 to 150 inch-lb (10.2 to 17 J)**.
 - 60 11. Structural Performance Testing: EIFS assembly and components shall comply with ICC-
61 ES AC219 when tested per ASTM E 330.

62 1.5 SUBMITTALS

- 63 A. Product Data: For each type and component of EIFS indicated.
- 64 B. Shop Drawings: For EIFS. Include plans, elevations, sections, details of components, details of
65 penetration and termination, flashing details, joint locations and configurations, fastening and
66 anchorage details including mechanical fasteners, and connections and attachments to other
67 work.
- 68 C. Samples for Verification: 24-inch- (600-mm-) square panels for each type of finish-coat color
69 and texture indicated, prepared using same tools and techniques intended for actual work
70 including [**custom trim, each profile,**] [**an aesthetic reveal,**] a typical control joint filled with
71 sealant of color selected.
 - 72 1. Include sealants[**and exposed accessory**] Samples to verify color selected.
 - 73 2. Match color and texture of EIFS at rear of adjoining space – Einstein Bros. Bagel

- 74 D. Qualification Data: For Installer, Minimum 5 years or jobs this size and scope.
- 75 E. Manufacturer Certificates: Signed by manufacturers certifying that EIFS comply with
76 requirements.
- 77 F. Material or Product Certificates: For cementitious materials and aggregates and for each
78 insulation and joint sealant, from manufacturer.
- 79 G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified
80 testing agency, for each water-/weather-resistive barrier, insulation, reinforcing mesh, joint
81 sealant, and coating.
- 82 H. Compatibility and Adhesion Test Reports: For joint sealants from sealant manufacturer
83 indicating the following:
- 84 1. Materials forming joint substrates and joint-sealant backings have been tested for
85 compatibility and adhesion with joint sealants.
- 86 2. Interpretation of test results and written recommendations for primers and substrate
87 preparation needed for adhesion.
- 88 I. Maintenance Data: For EIFS to include in maintenance manuals.

89 1.6 QUALITY ASSURANCE

- 90 A. Installer Qualifications: An installer who is certified in writing by EIFS manufacturer as
91 qualified to install manufacturer's system using trained workers.
- 92 B. Source Limitations: Obtain EIFS from single source from single EIFS manufacturer and from
93 sources approved by EIFS manufacturer as compatible with system components.
- 94 C. Fire-Test-Response Characteristics: Provide EIFS and system components with the following
95 fire-test-response characteristics as determined by testing identical EIFS and system
96 components per test method indicated below by UL or another testing and inspecting agency
97 acceptable to authorities having jurisdiction. Identify products with appropriate markings of
98 applicable testing agency.
- 99 1. Fire-Resistance Characteristics: Provide materials and construction tested for fire
100 resistance per ASTM E 119.
- 101 2. Full-Scale Multistory Fire Test: Tested mockup, representative of completed multistory
102 wall assembly of which EIFS is a part, complies with UBC Standard 26-4 for test method
103 and required fire-test-response characteristics of exterior non-load-bearing wall panel
104 assemblies containing foam-plastic insulation.
- 105 3. Full-Scale Diversified Fire Test: Tested mockup, representative of completed multistory
106 wall assembly of which EIFS is a part, showing no significant contribution to vertical or
107 horizontal flame spread per ASTM E 108 modified for testing vertical walls.
- 108 4. Radiant Heat Exposure: No ignition of EIFS when tested according to NFPA 268.
- 109 5. Potential Heat: Acceptable level when tested according to NFPA 259.
- 110 6. Surface-Burning Characteristics: Provide insulation board, adhesives, base coats, and
111 finish coats with flame-spread index of 25 or less and smoke-developed index of 450 or
112 less, per ASTM E 84.

- 113 1.7 DELIVERY, STORAGE, AND HANDLING
- 114 A. Deliver materials in original, unopened packages with manufacturers' labels intact and clearly
115 identifying products.
- 116 B. Store materials inside and under cover; keep them dry and protected from weather, direct
117 sunlight, surface contamination, aging, corrosion, damaging temperatures, construction traffic,
118 and other causes.
- 119 1. Stack insulation board flat and off the ground.

120 1.8 PROJECT CONDITIONS

- 121 A. Weather Limitations: Maintain ambient temperatures above 40 deg F (4.4 deg C) for a
122 minimum of 24 hours before, during, and after adhesives or coatings are applied. Do not apply
123 EIFS adhesives or coatings during rainfall. Proceed with installation only when existing and
124 forecasted weather conditions and ambient outdoor air, humidity, and substrate temperatures
125 permit EIFS to be applied, dried, and cured according to manufacturers' written instructions and
126 warranty requirements.
- 127 B. Field Measurements: Verify actual dimensions required for prefabricated panels by field
128 measurements before fabrication.

129 1.9 COORDINATION

- 130 A. Coordinate installation of EIFS with related Work specified in other Sections to ensure that wall
131 assemblies, including sheathing, flashing, trim, joint sealants, windows, and doors, are protected
132 against damage from the effects of weather, age, corrosion, moisture, and other causes. Do not
133 allow water to penetrate behind flashing and barrier coating of EIFS.

134 PART 2 - PRODUCTS

135 2.1 MANUFACTURERS

- 136 A. Manufacturers: Subject to compliance with requirements, provide products by one of the
137 following :
- 138 1. Acrocrete, Inc.
139 2. Corev America, Inc.
140 3. Dryvit Systems, Inc.
141 4. El Rey Stucco Company, Inc.; a brand of ParexLahabra, Inc.
142 5. Finestone; Degussa Wall Systems, Inc.
143 6. Master Wall, Inc.
144 7. Omega Products International, Inc.
145 8. Parex, Inc.; a brand of ParexLahabra, Inc.
146 9. Pleko LLC.
147 10. Senergy; Degussa Wall Systems, Inc.

- 148 11. SonoWall; Degussa Wall Systems, Inc.
- 149 12. Sto Corp.
- 150 13. Stuc-O-Flex International, Inc.
- 151 14. TEC; an H. B. Fuller company.
- 152 15. Total Wall Inc.

153 2.2 MATERIALS

- 154 A. Add Moisture Barrier (fluid apply) spec/info , (i.e. Gold Guard System)
- 155 B. Compatibility: Provide adhesive, fasteners, board insulation, reinforcing meshes, base- and
156 finish-coat systems, sealants, and accessories that are compatible with one another and with
157 substrates and approved for use by EIFS manufacturer for Project.
- 158 C. Insulation Adhesive: EIFS manufacturer's standard formulation designed for indicated use,
159 compatible with substrate, and complying with[**one of**] the following:
 - 160 1. Job-mixed formulation of portland cement complying with ASTM C 150, Type I, and
161 polymer-based adhesive specified for base coat.
 - 162 2. Factory-blended dry formulation of portland cement, dry polymer admixture, and fillers
163 specified for base coat.
 - 164 3. Factory-mixed noncementitious formulation designed for adhesive attachment of
165 insulation to substrates of type indicated, as recommended by EIFS manufacturer.
- 166 D. Molded, Rigid Cellular Polystyrene Board Insulation: Comply with ASTM C 578, Type I;
167 EIFS manufacturer's requirements; and EIMA's "EIMA Guideline Specification for Expanded
168 Polystyrene (EPS) Insulation Board" for most stringent requirements for material performance
169 and qualities of insulation, including dimensions and permissible variations, and the following:
 - 170 1. Aging: Before cutting and shipping, age insulation in block form by air drying for not
171 less than six weeks or by another method approved by EIMA that produces equivalent
172 results.
 - 173 2. Flame-Spread and Smoke-Developed Indexes: 25 and 450 or less, respectively, per
174 ASTM E 84.
 - 175 3. Dimensions: Provide insulation boards not more than 24 by 48 inches (610 by 1219 mm)
176 and in thickness indicated, but not more than 4 inches (102 mm) thick or less than
177 thickness allowed by ASTM C 1397.
 - 178 4. Foam Shapes: Provide with profiles and dimensions indicated on Drawings.
- 179 E. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh treated for
180 compatibility with other EIFS materials, made from continuous multiend strands with retained
181 mesh tensile strength of not less than 120 lbf/in. (21 dN/cm) per; complying with ASTM D 578
182 and the following:
 - 183 1. Standard-Impact Reinforcing Mesh: Not less than [**4.0 oz./sq. yd. (136 g/sq. m)**] .
 - 184 2. High-Impact Reinforcing Mesh: Take to 8'-0" AFF
 - 185 3. Strip Reinforcing Mesh: Not less than [**3.75 oz./sq. yd. (127 g/sq. m)**] <Insert weight>.
 - 186 4. Detail Reinforcing Mesh: Not less than [**4.0 oz./sq. yd. (136 g/sq. m)**] <Insert weight>.
 - 187 5. Corner Reinforcing Mesh: Not less than [**7.2 oz./sq. yd. (244 g/sq. m)**] <Insert weight>.

- 188 F. Base-Coat Materials: EIFS manufacturer's standard mixture complying with[**one of**] the
189 following:
- 190 1. Job-mixed formulation of portland cement complying with ASTM C 150, Type I, white
191 or natural color; and manufacturer's standard polymer-emulsion adhesive designed for
192 use with portland cement.
- 193 2. Job-combined formulation of manufacturer's standard polymer-emulsion adhesive and
194 manufacturer's standard dry mix containing portland cement.
- 195 3. Factory-blended dry formulation of portland cement, dry polymer admixture, and inert
196 fillers to which only water is added at Project site.
- 197 4. Factory-mixed noncementitious formulation of polymer-emulsion adhesive and inert
198 fillers that is ready to use without adding other materials.
- 199 G. Waterproof Adhesive/Base-Coat Materials: EIFS manufacturer's standard waterproof
200 formulation complying with[**one of**] the following:
- 201 1. Job-mixed formulation of portland cement complying with ASTM C 150, Type I, white
202 or natural color; and manufacturer's standard polymer-emulsion adhesive designed for
203 use with portland cement.
- 204 2. Job-combined formulation of manufacturer's standard polymer-emulsion adhesive and
205 manufacturer's standard dry mix containing portland cement.
- 206 H. Primer: EIFS manufacturer's standard factory-mixed, elastomeric-polymer primer for preparing
207 base-coat surface for application of finish coat.
- 208 I. Finish-Coat Materials: EIFS manufacturer's standard acrylic-based coating with enhanced
209 mildew resistance complying with the following:
- 210 1. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments,
211 sound stone particles, and fillers.
- 212 2. Colors: Match EIFS at Adjacent Space – Einstein Bros. Bagel.
- 213 J. Water: Potable.
- 214 K. Trim Accessories: Type as designated or required to suit conditions indicated and to comply
215 with EIFS manufacturer's written instructions; manufactured from UV-stabilized PVC; and
216 complying with ASTM D 1784, manufacturer's standard Cell Class for use intended, and
217 ASTM C 1063.
- 218 1. Starter Track: Prefabricated, one-piece type for attachment behind insulation with face
219 leg extended to form a drip, of depth required to suit thickness of coating and insulation,
220 with face leg perforated for bonding to coating and back leg.
- 221 2. Expansion Joint: Prefabricated, one-piece V profile; designed to relieve stress of
222 movement.
- 223 2.3 ELASTOMERIC SEALANTS
- 224 A. Elastomeric Sealant Products: Provide EIFS manufacturer's listed and recommended
225 chemically curing, elastomeric sealant that is compatible with joint fillers, joint substrates, and
226 other related materials, and complies with requirements for products and testing indicated in

227 ASTM C 1481 and with requirements in Division 07 Section "Joint Sealants" for products
228 corresponding to description indicated below:

229 2.4 MIXING

230 A. General: Comply with EIFS manufacturer's requirements for combining and mixing materials.
231 Do not introduce admixtures, water, or other materials except as recommended by EIFS
232 manufacturer. Mix materials in clean containers. Use materials within time period specified by
233 EIFS manufacturer or discard.

234 PART 3 - EXECUTION

235 3.1 EXAMINATION

236 A. Examine substrates, areas, and conditions, with Installer present, for compliance with
237 requirements for installation tolerances and other conditions affecting performance of EIFS.

238 B. Examine roof edges, wall framing, flashings, openings, substrates, and junctures at other
239 construction for suitable conditions where EIFS will be installed.

240 C. Proceed with installation only after unsatisfactory conditions have been corrected.

- 241 1. Begin coating application only after surfaces are dry.
242 2. Application of coating indicates acceptance of surfaces and conditions.

243 3.2 PREPARATION

244 A. Protect contiguous work from moisture deterioration and soiling caused by application of EIFS.
245 Provide temporary covering and other protection needed to prevent spattering of exterior finish
246 coats on other work.

247 B. Protect EIFS, substrates, and wall construction behind them from inclement weather during
248 installation. Prevent penetration of moisture behind EIFS and deterioration of substrates.

249 C. Prepare and clean substrates to comply with EIFS manufacturer's written instructions to obtain
250 optimum bond between substrate and adhesive for insulation.

251 3.3 EIFS INSTALLATION, GENERAL

252 A. Comply with ASTM C 1397 and EIFS manufacturer's written instructions for installation of
253 EIFS as applicable to each type of substrate indicated.

254 3.4 SUBSTRATE PROTECTION APPLICATION

255 A. Primer/Sealer: Apply over gypsum sheathing substrates to protect substrates from degradation
256 and where required by EIFS manufacturer for improving adhesion of insulation to substrate.

- 257 3.5 TRIM INSTALLATION
- 258 A. Trim: Apply trim accessories at perimeter of EIFS, at expansion joints, and elsewhere as
259 indicated, according to EIFS manufacturer's written instructions. Coordinate with installation of
260 insulation.
- 261 1. Starter Track: Use at bottom edges of EIFS unless otherwise indicated.
262 2. Expansion Joint: Use as recommended by manufacturer,
- 263 3.6 INSULATION INSTALLATION
- 264 A. Board Insulation: Adhesively attach insulation to substrate in compliance with ASTM C 1397,
265 EIFS manufacturer's written instructions, and the following:
- 266 1. Apply adhesive to insulation by notched-trowel method in a manner that results in
267 coating the entire surface of sheathing with adhesive once insulation is adhered to
268 sheathing unless EIFS manufacturer's written instructions specify using primer/sealer
269 with ribbon-and-dab method. Apply adhesive to a thickness of not less than **1/4 inch (6.4**
270 **mm)** for factory mixed and not less than **3/8 inch (9.6 mm)** for field mixed, measured
271 from surface of insulation before placement.
- 272 2. Press and slide insulation into place. Apply pressure over the entire surface of insulation
273 to accomplish uniform contact, high initial grab, and overall level surface.
- 274 3. Allow adhered insulation to remain undisturbed for period recommended by EIFS
275 manufacturer, but not less than 24 hours, before[**installing mechanical fasteners,**]
276 beginning rasping and sanding insulation, or applying base coat and reinforcing mesh.
- 277 4. Apply insulation over dry substrates in courses with long edges of boards oriented
278 horizontally.
- 279 5. Begin first course of insulation from screed/track and work upward. Work from
280 perimeter casing beads toward interior of panels if possible.
- 281 6. Stagger vertical joints of insulation boards in successive courses to produce running bond
282 pattern. Locate joints so no piece of insulation is less than 12 inches (300 mm) wide or 6
283 inches (150 mm) high. Offset joints not less than 6 inches (150 mm) from corners of
284 window and door openings.
- 285 a. Adhesive Attachment: Offset joints of insulation not less than 6 inches (150 mm)
286 from horizontal and 4 inches (100 mm) from vertical joints in sheathing.
- 287 b. Mechanical Attachment: Offset joints of insulation from horizontal joints in
288 sheathing.
- 289 7. Interlock ends at internal and external corners.
- 290 8. Abut insulation tightly at joints within and between each course to produce flush,
291 continuously even surfaces without gaps or raised edges between boards. If gaps greater
292 than 1/16 inch (1.6 mm) occur, fill with insulation cut to fit gaps exactly; insert insulation
293 without using adhesive or other material.
- 294 9. Cut insulation to fit openings, corners, and projections precisely and to produce edges
295 and shapes complying with details indicated.
- 296 10. Rasp or sand flush entire surface of insulation to remove irregularities projecting more
297 than [**1/32 inch (0.8 mm)**] [**1/16 inch (1.6 mm)**] from surface of insulation and to

- 298 remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16
299 inch (1.6 mm).
- 300 11. Cut aesthetic reveals in outside face of insulation with high-speed router and bit
301 configured to produce grooves, rabbets, and other features that comply with profiles and
302 locations indicated. Do not reduce insulation thickness at aesthetic reveals to less than
303 3/4 inch (19 mm).
- 304 12. Interrupt insulation for expansion joints where indicated.
- 305 13. Form joints for sealant application by leaving gaps between adjoining insulation edges
306 and between insulation edges and dissimilar adjoining surfaces. Make gaps wide enough
307 to produce joint widths indicated after encapsulating joint substrates with base coat and
308 reinforcing mesh.
- 309 14. Form joints for sealant application with back-to-back casing beads for joints within EIFS
310 and with perimeter casing beads at dissimilar adjoining surfaces. Make gaps between
311 casing beads and between perimeter casing beads and adjoining surfaces of width
312 indicated.
- 313 15. After installing insulation and before applying reinforcing mesh, fully wrap board edges
314 with strip reinforcing mesh. Cover edges of board and extend encapsulating mesh not
315 less than 2-1/2 inches (64 mm) over front and back face unless otherwise indicated on
316 Drawings.
- 317 16. Treat exposed edges of insulation as follows:
- 318 a. Except for edges forming substrates of sealant joints, encapsulate with base coat,
319 reinforcing mesh, and finish coat.
- 320 b. Encapsulate edges forming substrates of sealant joints within EIFS or between
321 EIFS and other work with base coat and reinforcing mesh.
- 322 c. At edges trimmed by accessories, extend base coat, reinforcing mesh, and finish
323 coat over face leg of accessories.
- 324 17. Coordinate installation of flashing and insulation to produce wall assembly that does not
325 allow water to penetrate behind flashing and EIFS protective-coating lamina.
- 326 B. Expansion Joints: Install at locations indicated, where required by EIFS manufacturer, and as
327 follows:
- 328 1. At expansion joints in substrates behind EIFS.
- 329 2. Where EIFS adjoin dissimilar substrates, materials, and construction, including other
330 EIFS.
- 331 3. Where wall height or building shape changes.
- 332 4. Where EIFS manufacturer requires joints in long continuous elevations.

333 3.7 BASE-COAT INSTALLATION

- 334 A. Base Coat: Apply to exposed surfaces of insulation in minimum thickness recommended in
335 writing by EIFS manufacturer, but not less than 1/16-inch (1.6-mm) dry-coat thickness.
- 336 B. Reinforcing Mesh: Embed type indicated below in wet base coat to produce wrinkle-free
337 installation with mesh continuous at corners and overlapped not less than 2-1/2 inches (64 mm)
338 or otherwise treated at joints to comply with ASTM C 1397 and EIFS manufacturer's written
339 instructions. Do not lap reinforcing mesh within 8 inches (204 mm) of corners. Completely

340 embed mesh, applying additional base-coat material if necessary, so reinforcing-mesh color and
341 pattern are not visible.

- 342 1. Standard-impact reinforcing mesh [**unless otherwise indicated**] <Insert location>.
- 343 2. High-impact reinforcing mesh [**where indicated**] <Insert location>.

344 C. Double-Layer Reinforcing Mesh Application: Where indicated, apply second base coat and
345 second layer of standard-impact reinforcing mesh, overlapped not less than 2-1/2 inches (64
346 mm) or otherwise treated at joints to comply with ASTM C 1397 and EIFS manufacturer's
347 written instructions in same manner as first application. Do not apply until first base coat has
348 cured. Double layer where indicated (over the high impact).

349 D. Additional Reinforcing Mesh: Apply strip reinforcing mesh around openings extending 4
350 inches (100 mm) beyond perimeter. Apply additional 9-by-12-inch (230-by-300-mm) strip
351 reinforcing mesh diagonally at corners of openings (re-entrant corners). Apply 8-inch- (200-
352 mm-) wide strip reinforcing mesh at both inside and outside corners unless base layer of mesh is
353 lapped not less than 4 inches (100 mm) on each side of corners.

- 354 1. At aesthetic reveals, apply strip reinforcing mesh not less than **8 inches (200 mm)** wide.
- 355 2. Embed strip reinforcing mesh in base coat before applying first layer of reinforcing mesh.

356 3.8 FINISH-COAT INSTALLATION

357 A. Finish Coat: Apply over dry base coat, maintaining a wet edge at all times for uniform
358 appearance, in thickness required by EIFS manufacturer to produce a uniform finish of color
359 and texture matching approved sample and free of cold joints, shadow lines, and texture
360 variations.

- 361 1. Texture: Match EIFS texture on adjacent space – Einstein Bros. Bagel.

362 3.9 INSTALLATION OF JOINT SEALANTS

363 A. Prepare joints and apply sealants, of type and at locations indicated, to comply with applicable
364 requirements in Division 07 Section "Joint Sealants" and in ASTM C 1481.

- 365 1. Apply joint sealants after base coat has cured but before applying finish coat.
- 366 2. Clean surfaces to receive sealants to comply with indicated requirements and EIFS
367 manufacturer's written instructions.
- 368 3. Apply primer recommended in writing by sealant manufacturer for surfaces to be sealed.
- 369 4. Install sealant backing to control depth and configuration of sealant joint and to prevent
370 sealant from adhering to back of joint.
- 371 5. Apply masking tape to protect areas adjacent to sealant joints. Remove tape immediately
372 after tooling joints, without disturbing joint seal.
- 373 6. Recess sealant sufficiently from surface of EIFS so an additional sealant application,
374 including cylindrical sealant backing, can be installed without protruding beyond EIFS
375 surface.

- 376 3.10 CLEANING AND PROTECTION
- 377 A. Remove temporary covering and protection of other work. Promptly remove coating materials
378 from window and door frames and other surfaces outside areas indicated to receive EIFS
379 coatings.
- 380 END OF SECTION 072413

1 SECTION 079200 - JOINT SEALANTS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes joint sealants for the following applications:

8 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:

- 9 a. Construction joints in cast-in-place concrete.
10 b. Joints between plant-precaster architectural concrete units.
11 c. Joints in exterior insulation and finish systems.
12 d. Joints between different materials listed above.
13 e. Perimeter joints between materials listed above and frames of doors, windows and
14 louvers.
15 f. Control and expansion joints in ceilings and other overhead surfaces.
16 g. Other joints as indicated.

17 2. Exterior joints in the following horizontal traffic surfaces:

18 3. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:

- 19 a. Control and expansion joints on exposed interior surfaces of exterior walls.
20 b. Perimeter joints of exterior openings where indicated.
21 c. Tile control and expansion joints.
22 d. Vertical joints on exposed surfaces of concrete, walls and partitions.
23 e. Perimeter joints between interior wall surfaces and frames of interior doors and
24 windows.
25 f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
26 g. Other joints as indicated.

27 4. Interior joints in the following horizontal traffic surfaces:

- 28 a. Isolation joints in cast-in-place concrete slabs.
29 b. Control and expansion joints in tile flooring.
30 c. Other joints as indicated.

- 31 1.3 PERFORMANCE REQUIREMENTS
- 32 A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous
33 joint seals without staining or deteriorating joint substrates.
- 34 1.4 SUBMITTALS
- 35 A. Product Data: For each joint-sealant product indicated.
- 36 B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants
37 showing the full range of colors available for each product exposed to view.
- 38 C. Product Certificates: For each type of joint sealant and accessory, signed by product
39 manufacturer.
- 40 D. Qualification Data: For Installer.
- 41 E. Product Test Reports: Based on comprehensive testing of product formulations performed by a
42 qualified testing agency, indicating that sealants comply with requirements.
- 43 F. Warranties: Special warranties specified in this Section.
- 44 1.5 QUALITY ASSURANCE
- 45 A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for
46 installation of elastomeric sealants required for this Project.
- 47 B. Source Limitations: Obtain each type of joint sealant through one source from a single
48 manufacturer.
- 49 C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals"
50 Article from a qualified testing agency based on testing current sealant formulations within a
51 36-month period preceding the Notice to Proceed with commencement of the Work.
- 52 1. Testing Agency Qualifications: An independent testing agency qualified according to
53 ASTM C 1021 to conduct the testing indicated, as documented according to
54 ASTM E 548.
- 55 2. Test elastomeric joint sealants for compliance with requirements specified by reference to
56 ASTM C 920, and where applicable, to other standard test methods.
- 57 3. Test other joint sealants for compliance with requirements indicated by referencing
58 standard specifications and test methods.
- 59 1.6 PROJECT CONDITIONS
- 60 A. Do not proceed with installation of joint sealants under the following conditions:
- 61 1. When ambient and substrate temperature conditions are outside limits permitted by joint-
62 sealant manufacturer or are below 40 deg F (5 deg C).

- 63 2. When joint substrates are wet.
64 3. Where joint widths are less than those allowed by joint-sealant manufacturer for
65 applications indicated.
66 4. Contaminants capable of interfering with adhesion have not yet been removed from joint
67 substrates.

68 1.7 WARRANTY

- 69 A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or
70 replace elastomeric joint sealants that do not comply with performance and other requirements
71 specified in this Section within specified warranty period.

- 72 1. Warranty Period: Two years from date of Substantial Completion.

- 73 B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant
74 manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not
75 comply with performance and other requirements specified in this Section within specified
76 warranty period.

- 77 1. Warranty Period: 10 years from date of Substantial Completion.

- 78 C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint
79 sealants from the following:

- 80 1. Movement of the structure resulting in stresses on the sealant exceeding sealant
81 manufacturer's written specifications for sealant elongation and compression caused by
82 structural settlement or errors attributable to design or construction.
83 2. Disintegration of joint substrates from natural causes exceeding design specifications.
84 3. Mechanical damage caused by individuals, tools, or other outside agents.
85 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric
86 contaminants.

87 PART 2 - PRODUCTS

88 2.1 MANUFACTURERS

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

92 2.2 MATERIALS, GENERAL

- 93 A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible
94 with one another and with joint substrates under conditions of service and application, as
95 demonstrated by sealant manufacturer, based on testing and field experience.

96 B. Colors of Exposed Joint Sealants: As indicated by manufacturer's designations As selected by
97 Architect from manufacturer's full range.

98 2.3 ELASTOMERIC JOINT SEALANTS

99 A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each
100 liquid-applied chemically curing sealant specified, including those referencing ASTM C 920
101 classifications for type, grade, class, and uses related to exposure and joint substrates.

102 B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be
103 nonstaining to porous substrates, provide products that have undergone testing according to
104 ASTM C 1248 and have not stained porous joint substrates indicated for Project.

105 C. Single-Component Neutral- and Basic-Curing Neutral-Curing Silicone Sealant ES-1:

106 1. Available Products:

- 107 a. GE Silicones; SilPruf SCS2000.
- 108 b. Pecora Corporation; 864.
- 109 c. Pecora Corporation; 890.
- 110 d. Polymeric Systems Inc.; PSI-641.
- 111 e. Sonneborn, Division of ChemRex Inc.; Omniseal.
- 112 f. Tremco; Spectrem 3.
- 113 g. Dow Corning Corporation; 791.
- 114 h. Dow Corning Corporation; 795
- 115 i. GE Silicones; SilPruf NB SCS9000.
- 116 j. GE Silicones; UltraPruf II SCS2900.
- 117 k. Pecora Corporation; 865.
- 118 l. Pecora Corporation; 895.
- 119 m. Pecora Corporation; 898.

120 2. Type and Grade: S (single component) and NS (nonsag).

121 3. Class: 50.

122 4. Use Related to Exposure: NT (nontraffic).

123 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates
124 indicated, O.

125 a. Use O Joint Substrates: color anodic aluminum and precast concrete panels.

126 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per
127 ASTM C 1248.

128 D. Single-Component Mildew-Resistant Acid-Curing Silicone Sealant ES-2:

129 1. Products:

130 a. Dow Corning Corporation; 786 Mildew Resistant.

131 b. GE Silicones; Sanitary SCS1700.

132 c. Tremco; Tremsil 200 White.

133 2. Type and Grade: S (single component) and NS (nonsag).

- 134 3. Class: 25.
135 4. Use Related to Exposure: NT (nontraffic).
136 5. Uses Related to Joint Substrates: G, A, and, as applicable to joint substrates indicated, O.
- 137 a. Use O Joint Substrates: Coated glass and porcelean.
- 138 E. Single-Component Nonsag Urethane Sealant ES-3:
- 139 1. Products:
- 140 a. Sika Corporation, Inc.; Sikaflex - 1a.
141 b. Sonneborn, Division of ChemRex Inc.; Ultra.
142 c. Sonneborn, Division of ChemRex Inc.; NP 1.
143 d. Tremco; Vulkem 116.
- 144 2. Type and Grade: S (single component) and NS (nonsag).
145 3. Class: 25.
146 4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
147 5. Uses Related to Joint Substrates: M, [G,]A, and, as applicable to joint substrates
148 indicated, O.
- 149 a. Use O Joint Substrates: Color anodic aluminum and precast concrete.
- 150 2.4 LATEX JOINT SEALANTS
- 151 A. Latex Sealant LS-1: Comply with ASTM C 834, Type P, Grade NF.
- 152 B. Products:
- 153 1. Bostik Findley; Chem-Calk 600.
154 2. Pecora Corporation; AC-20+.
155 3. Schnee-Morehead, Inc.; SM 8200.
156 4. Sonneborn, Division of ChemRex Inc.; Sonolac.
157 5. Tremco; Tremflex 834.
- 158 2.5 ACOUSTICAL JOINT SEALANTS
- 159 A. Acoustical Sealant for Exposed and Concealed Joints **AS-1**: Manufacturer's standard nonsag,
160 paintable, nonstaining latex sealant complying with ASTM C 834 and the following:
- 161 1. Product effectively reduces airborne sound transmission through perimeter joints and
162 openings in building construction as demonstrated by testing representative assemblies
163 according to ASTM E 90.
164 2. Products:
- 165 a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
166 b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

- 167 2.6 JOINT-SEALANT BACKING
- 168 A. General: Provide sealant backings of material and type that are nonstaining; are compatible
169 with joint substrates, sealants, primers, and other joint fillers; and are approved for applications
170 indicated by sealant manufacturer based on field experience and laboratory testing.
- 171 B. Cylindrical Sealant Backings: ASTM C 1330, Type [C (closed-cell material with a surface
172 skin)] [O (open-cell material)] [B (bicellular material with a surface skin)][or any of the
173 preceding types, as approved in writing by joint-sealant manufacturer for joint application
174 indicated], and of size and density to control sealant depth and otherwise contribute to
175 producing optimum sealant performance:
- 176 C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying
177 with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at
178 temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low
179 compression set and of size and shape to provide a secondary seal, to control sealant depth, and
180 to otherwise contribute to optimum sealant performance.
- 181 D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant
182 manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or
183 joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-
184 adhesive tape where applicable.

185 2.7 MISCELLANEOUS MATERIALS

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

195 PART 3 - EXECUTION

196 3.1 EXAMINATION

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

- 201 3.2 PREPARATION
- 202 A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to
203 comply with joint-sealant manufacturer's written instructions and the following requirements:
- 204 1. Remove all foreign material from joint substrates that could interfere with adhesion of
205 joint sealant, including dust, paints (except for permanent, protective coatings tested and
206 approved for sealant adhesion and compatibility by sealant manufacturer), old joint
207 sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- 208 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical
209 abrading, or a combination of these methods to produce a clean, sound substrate capable
210 of developing optimum bond with joint sealants. Remove loose particles remaining after
211 cleaning operations above by vacuuming or blowing out joints with oil-free compressed
212 air. Porous joint substrates include the following:
- 213 a. Concrete.
- 214 b. Masonry.
- 215 c. Unglazed surfaces of ceramic tile.
- 216 d. Precast concrete panels
- 217 3. Remove laitance and form-release agents from concrete.
- 218 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm
219 substrates, or leave residues capable of interfering with adhesion of joint sealants.
220 Nonporous joint substrates include the following:
- 221 a. Metal.
- 222 b. Glass.
- 223 c. Porcelain enamel.
- 224 d. Glazed surfaces of ceramic tile.
- 225 B. Joint Priming: Prime joint substrates[, **where recommended in writing by joint-sealant**
226 **manufacturer,**] based on preconstruction joint-sealant-substrate tests or prior experience.
227 Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers
228 to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- 229 C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining
230 surfaces that otherwise would be permanently stained or damaged by such contact or by
231 cleaning methods required to remove sealant smears. Remove tape immediately after tooling
232 without disturbing joint seal.
- 233 3.3 INSTALLATION OF JOINT SEALANTS
- 234 A. General: Comply with joint-sealant manufacturer's written installation instructions for products
235 and applications indicated, unless more stringent requirements apply.
- 236 B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint
237 sealants as applicable to materials, applications, and conditions indicated.

- 238 C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for
239 use of joint sealants in acoustical applications as applicable to materials, applications, and
240 conditions indicated.
- 241 D. Install sealant backings of type indicated to support sealants during application and at position
242 required to produce cross-sectional shapes and depths of installed sealants relative to joint
243 widths that allow optimum sealant movement capability.
- 244 1. Do not leave gaps between ends of sealant backings.
245 2. Do not stretch, twist, puncture, or tear sealant backings.
246 3. Remove absorbent sealant backings that have become wet before sealant application and
247 replace them with dry materials.
- 248 E. Install sealants using proven techniques that comply with the following and at the same time
249 backings are installed:
- 250 1. Place sealants so they directly contact and fully wet joint substrates.
251 2. Completely fill recesses in each joint configuration.
252 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow
253 optimum sealant movement capability.
- 254 F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or
255 curing begins, tool sealants according to requirements specified below to form smooth, uniform
256 beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of
257 sealant with sides of joint.
- 258 1. Remove excess sealant from surfaces adjacent to joints.
259 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not
260 discolor sealants or adjacent surfaces.
261 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise
262 indicated.
- 263 3.4 CLEANING
- 264 A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods
265 and with cleaning materials approved in writing by manufacturers of joint sealants and of
266 products in which joints occur.
- 267 3.5 PROTECTION
- 268 A. Protect joint sealants during and after curing period from contact with contaminating substances
269 and from damage resulting from construction operations or other causes so sealants are without
270 deterioration or damage at time of Substantial Completion. If, despite such protection, damage
271 or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately
272 so installations with repaired areas are indistinguishable from original work.

- 273 3.6 JOINT-SEALANT SCHEDULE
- 274 A. Joint-Sealant Application JS-1: Exterior joints in exterior insulation and finish systems.
- 275 1. Joint Sealant: Single-component neutral- and basic-curing silicone sealant ES-1].
- 276 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- 277 B. Joint-Sealant Application JS-2: Exterior perimeter joints between existing concrete, existing
- 278 precast panels, existing Anodized Aluminum, existing ceilings, brick pavers and frames of
- 279 doors, windows and louvers.
- 280 1. Joint Sealant: Single-component nonsag urethane sealant ES-3.
- 281 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- 282 C. Joint-Sealant Application JS-3: Exterior control and expansion joints in ceilings and other
- 283 overhead surfaces.
- 284 1. Joint Sealant: Single-component neutral- and basic-curing silicone sealant ES-1.
- 285 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- 286 D. Joint-Sealant Application JS-4: Vertical control and expansion joints on exposed interior
- 287 surfaces of exterior walls.
- 288 1. Joint Sealant: Single-component nonsag urethane sealant ES-3.
- 289 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- 290 E. Joint-Sealant Application JS-5: Interior joints between plumbing fixtures and adjoining walls,
- 291 floors, and counters.
- 292 1. Joint Sealant: Single-component mildew-resistant acid-curing silicone sealant ES-2.
- 293 2. Joint-Sealant Color: White.
- 294 F. Joint-Sealant Application JS-6: Vertical joints on exposed surfaces of interior walls and
- 295 partitions.
- 296 1. Joint Sealant: Latex sealant, LS-1.
- 297 2. Joint-Sealant Color: White.
- 298 G. Joint-Sealant Application JS-7: Perimeter joints between interior wall surfaces and frames of
- 299 interior doors and windows.
- 300 1. Joint Sealant: Latex sealant; LS-1.
- 301 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range.
- 302 END OF SECTION 079200

1 SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. Section Includes:

- 8 1. Standard hollow metal [**doors**] [**and**] [**frames**].

- 9 B. Related Sections:

- 10 1. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
11 2. Division 09 Sections "Interior Painting" for field painting hollow metal doors and frames.

12 1.3 DEFINITIONS

- 13 A. Minimum Thickness: Minimum thickness of base metal without coatings.

- 14 B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

15 1.4 SUBMITTALS

- 16 A. Product Data: For each type of product indicated. Include construction details, material
17 descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.

- 18 B. Shop Drawings: Include the following:

- 19 1. Elevations of each door design.
20 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
21 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
22 4. Locations of reinforcement and preparations for hardware.
23 5. Details of each different wall opening condition.
24 6. Details of anchorages, joints, field splices, and connections.
25 7. Details of accessories.
26 8. Details of moldings, removable stops, and glazing.

- 27 C. Other Action Submittals:

- 28 1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision
29 of supplier, using same reference numbers for details and openings as those on Drawings.
30 Coordinate with door hardware schedule.

- 31 1.5 QUALITY ASSURANCE
- 32 A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- 33 B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled
34 by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to
35 neutral pressure as possible according to UBC Standard 7-2.
- 36 C. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784 UBC Standard 7-2.
- 37 1.6 DELIVERY, STORAGE, AND HANDLING
- 38 A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit
39 and Project-site storage. Do not use nonvented plastic.
- 40 1. Provide additional protection to prevent damage to finish of factory-finished units.
- 41 B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded
42 to jambs and mullions.
- 43 C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a
44 vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood
45 blocking. Do not store in a manner that traps excess humidity.
- 46 1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air
47 circulation.
- 48 1.7 PROJECT CONDITIONS
- 49 A. Field Measurements: Verify actual dimensions of openings by field measurements before
50 fabrication.
- 51 1.8 COORDINATION
- 52 A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings,
53 templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor
54 bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- 55 PART 2 - PRODUCTS
- 56 2.1 MANUFACTURERS
- 57 A. Manufacturers: Subject to compliance with requirements, available manufacturers offering
58 products that may be incorporated into the Work include, but are not limited to, the following:
59 1. Ceco Door Products; an Assa Abloy Group company.
60 2. Curries Company; an Assa Abloy Group company.

- 61 3. Kewanee Corporation (The).
- 62 4. Mesker Door Inc.
- 63 5. Pioneer Industries, Inc.
- 64 6. Steelcraft; an Ingersoll-Rand company.
- 65 7. Windsor Republic Doors.

66 2.2 MATERIALS

- 67 A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable
68 for exposed applications.
- 69 B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of
70 scale, pitting, or surface defects; pickled and oiled.
- 71 C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with
72 minimum A60 (ZF180) metallic coating.
- 73 D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating
74 designation; mill phosphatized.
- 75 E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- 76 F. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application
77 indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for
78 attaching hollow metal frames of type indicated.
- 79 G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured
80 according to ASTM C 143/C 143M.
- 81 H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting
82 of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m)
83 density; with maximum flame-spread and smoke-development indexes of 25 and 50,
84 respectively; passing ASTM E 136 for combustion characteristics.
- 85 I. Glazing: Comply with requirements in Division 08 Section "Glazing."

86 2.3 STANDARD HOLLOW METAL DOORS

- 87 A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with
88 smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated.
89 Comply with ANSI/SDI A250.8.
- 90 1. Design: Flush panel
- 91 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene,
92 polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
- 93 a. Fire Door Core: As required to provide fire-protection ratings indicated.
- 94 3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.

- 95 4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end
96 closures or channels of same material as face sheets.
97 5. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors
98 and Frames."
- 99 B. Interior Doors: Face sheets fabricated from cold-rolled steel sheet . Provide doors complying
100 with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and
101 ANSI/SDI A250.4 for physical performance level:
- 102 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush) .
- 103 C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates
104 from same material as door face sheets.
- 105 D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel
106 sheet.
- 107 2.4 STANDARD HOLLOW METAL FRAMES
- 108 A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- 109 B. Interior Frames: Fabricated from cold-rolled steel sheet.
- 110 1. Fabricate frames with mitered or coped corners.
111 2. Fabricate frames as face welded unless otherwise indicated.
112 3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
113 4. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
114 5. Frames for Level 3 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
- 115 C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates
116 from same material as frames.
- 117 PART 3 - EXECUTION
- 118 3.1 EXAMINATION
- 119 A. Examine substrates, areas, and conditions, with Installer present, for compliance with
120 requirements for installation tolerances and other conditions affecting performance of the Work.
- 121 B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame
122 installation.
- 123 C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to
124 performance of the Work.
- 125 D. Proceed with installation only after unsatisfactory conditions have been corrected.

- 126 3.2 PREPARATION
- 127 A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding,
128 filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed
129 faces.
- 130 B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness,
131 alignment, twist, and plumbness to the following tolerances:
- 132 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90
133 degrees from jamb perpendicular to frame head.
- 134 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line
135 parallel to plane of wall.
- 136 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on
137 parallel lines, and perpendicular to plane of wall.
- 138 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular line
139 from head to floor.
- 140 C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door
141 hardware.
- 142 3.3 INSTALLATION
- 143 A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in
144 place; comply with Drawings and manufacturer's written instructions.
- 145 B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with
146 ANSI/SDI A250.11.
- 147 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent
148 anchors are set. After wall construction is complete, remove temporary braces, leaving
149 surfaces smooth and undamaged.
- 150 a. At fire-protection-rated openings, install frames according to NFPA 80.
- 151 b. Where frames are fabricated in sections because of shipping or handling
152 limitations, field splice at approved locations by welding face joint continuously;
153 grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
- 154 c. Install frames with removable glazing stops located on secure side of opening.
- 155 d. Install door silencers in frames before grouting.
- 156 e. Remove temporary braces necessary for installation only after frames have been
157 properly set and secured.
- 158 f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim
159 as necessary to comply with installation tolerances.
- 160 g. Field apply bituminous coating to backs of frames that are filled with grout
161 containing antifreezing agents.
- 162 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor,
163 and secure with postinstalled expansion anchors.

- 164 a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled
165 expansion anchors if so indicated and approved on Shop Drawings.
- 166 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
167 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space
168 between frames and masonry with grout.
169 5. Concrete Walls: Solidly fill space between frames and concrete with grout. Take
170 precautions, including bracing frames, to ensure that frames are not deformed or damaged
171 by grout forces.
172 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled
173 expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible
174 on exposed faces.
175 7. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion
176 anchors through floor anchors at each jamb. Countersink anchors, and fill and make
177 smooth, flush, and invisible on exposed faces.
178 8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead
179 structural supports or substrates above frame unless frame is anchored to masonry or to
180 other structural support at each jamb. Bend top of struts to provide flush contact for
181 securing to supporting construction. Provide adjustable wedged or bolted anchorage to
182 frame jamb members.
183 9. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment,
184 twist, and plumb to the following tolerances:
- 185 a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line
186 90 degrees from jamb perpendicular to frame head.
187 b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal
188 line parallel to plane of wall.
189 c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of
190 jambs on parallel lines, and perpendicular to plane of wall.
191 d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- 192 C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified
193 below. Shim as necessary.
- 194 1. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
195 2. Smoke-Control Doors: Install doors according to UBC Standard 7-2.
- 196 D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with
197 hollow metal manufacturer's written instructions.
- 198 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not
199 more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each
200 corner.

201 3.4 ADJUSTING AND CLEANING

- 202 A. Final Adjustments: Check and readjust operating hardware items immediately before final
203 inspection. Leave work in complete and proper operating condition. Remove and replace
204 defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

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- 205 B. Remove grout and other bonding material from hollow metal work immediately after
206 installation.
- 207 C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of
208 prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- 209 D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint
210 according to manufacturer's written instructions.
- 211 END OF SECTION 081113

1 SECTION 081416 - FLUSH WOOD DOORS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. Section Includes:

- 8 1. Solid-core doors with wood-veneer .
9 2. Factory finishing flush wood doors.
10 3. Factory fitting flush wood doors to frames and factory machining for hardware.

11 1.3 SUBMITTALS

- 12 A. Product Data: For each type of door indicated. Include details of core and edge construction
13 and trim for openings. Include factory-finishing specifications.

- 14 B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door;
15 construction details not covered in Product Data; location and extent of hardware blocking; and
16 other pertinent data.

- 17 1. Indicate dimensions and locations of mortises and holes for hardware.
18 2. Indicate dimensions and locations of cutouts.
19 3. Indicate requirements for veneer matching.
20 4. Indicate doors to be factory finished and finish requirements.
21 5. Indicate fire-protection ratings for fire-rated doors.

- 22 C. Samples for Initial Selection: For factory-finished doors.

- 23 D. Samples for Verification:

- 24 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200
25 by 250 mm), for each material and finish.[For each wood species and transparent finish,
26 provide set of three samples showing typical range of color and grain to be expected in
27 the finished work.]

- 28 E. Warranty: Sample of special warranty.

29 1.4 QUALITY ASSURANCE

- 30 A. Source Limitations: Obtain flush wood doors from single manufacturer.

31 B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A,
32 "Architectural Wood Flush Doors."

33 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project
34 indicating that doors comply with requirements of grades specified.

35 1.5 DELIVERY, STORAGE, AND HANDLING

36 A. Comply with requirements of referenced standard and manufacturer's written instructions.

37 B. Package doors individually in plastic bags or cardboard cartons.

38 C. Mark each door on bottom rail with opening number used on Shop Drawings.

39 1.6 PROJECT CONDITIONS

40 A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and
41 weathertight, wet work in spaces is complete and dry, and HVAC system is operating and
42 maintaining ambient temperature and humidity conditions at occupancy levels during the
43 remainder of the construction period.

44 1.7 WARRANTY

45 A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or
46 replace doors that fail in materials or workmanship within specified warranty period.

47 1. Failures include, but are not limited to, the following:

48 a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch
49 (1067-by-2134-mm) section.

50 b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch
51 (0.25 mm in a 76.2-mm) span.

52 2. Warranty shall also include installation and finishing that may be required due to repair
53 or replacement of defective doors.

54 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

55 PART 2 - PRODUCTS

56 2.1 MANUFACTURERS

57 A. Manufacturers: Subject to compliance with requirements, available manufacturers offering
58 products that may be incorporated into the Work include, but are not limited to, the following:

59 1. Algoma Hardwoods, Inc.

60 2. Ampco, Inc.

- 61 3. Buell Door Company Inc.
- 62 4. Chappell Door Co.
- 63 5. Eagle Plywood & Door Manufacturing, Inc.
- 64 6. Eggers Industries.
- 65 7. Graham; an Assa Abloy Group company.
- 66 8. Haley Brothers, Inc.
- 67 9. Ideal Architectural Doors & Plywood.
- 68 10. Ipik Door Company.
- 69 11. Lambton Doors.
- 70 12. Marlite.
- 71 13. Marshfield Door Systems, Inc.
- 72 14. Mohawk Flush Doors, Inc.; a Masonite company.
- 73 15. Oshkosh Architectural Door Company.
- 74 16. Poncraft Door Company.
- 75 17. Vancouver Door Company.
- 76 18. VT Industries Inc.

77 2.2 DOOR CONSTRUCTION, GENERAL

- 78 A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that
79 do not contain urea formaldehyde.
- 80 B. WDMA I.S.1-A Performance Grade: Heavy Duty.
- 81 C. WDMA I.S.1-A Performance Grade:
 - 82 1. Heavy Duty unless otherwise indicated.
- 83 D. Particleboard-Core Doors:
 - 84 1. Particleboard: ANSI A208.1, Grade LD-1.
- 85 E. Mineral-Core Doors:
 - 86 1. Core: Noncombustible mineral product complying with requirements of referenced
87 quality standard and testing and inspecting agency for fire-protection rating indicated.
 - 88 2. Blocking: Provide composite blocking with improved screw-holding capability approved
89 for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting
90 hardware.
 - 91 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved
92 screw-holding capability and split resistance. Comply with specified requirements for
93 exposed edges.

94 2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- 95 A. Interior Solid-Core Doors
 - 96 1. Grade: Custom (Grade A faces).

- 97 2. Species Red oak .
- 98 3. Cut: Rotary cut.
- 99 4. Match between Veneer Leaves: Book match.
- 100 5. Assembly of Veneer Leaves on Door Faces: Running match.
- 101 6. Exposed Vertical Edges: Same species as faces or a compatible species .
- 102 7. Core: Particleboard .
- 103 8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit abrasive
- 104 planed before veneering. Faces are bonded to core using a hot press.
- 105 9. WDMA I.S.1-A Performance Grade: Heavy Duty .

106 2.4 FABRICATION

- 107 A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of
- 108 referenced quality standard for fitting unless otherwise indicated.

- 109 B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply
- 110 with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings,
- 111 DHI A115-W series standards, and hardware templates.

- 112 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment
- 113 before factory machining.

114 2.5 FACTORY FINISHING

- 115 A. General: Comply with referenced quality standard for factory finishing. Complete fabrication,
- 116 including fitting doors for openings and machining for hardware that is not surface applied,
- 117 before finishing.

- 118 1. Finish faces, all four edges, edges of cutouts, and mortises.

- 119 B. Finish doors at factory.

- 120 C. Transparent Finish:

- 121 1. Grade: Premium Custom.
- 122 2. Finish: WDMA TR-4 conversion varnish.
- 123 3. Staining: As selected by Architect from manufacturer's full range.
- 124 4. Effect: Filled finish .
- 125 5. Sheen: Satin.

126 PART 3 - EXECUTION

127 3.1 EXAMINATION

- 128 A. Examine doors and installed door frames before hanging doors.

- 129 1. Verify that frames comply with indicated requirements for type, size, location, and swing
130 characteristics and have been installed with level heads and plumb jambs.
131 2. Reject doors with defects.
- 132 B. Proceed with installation only after unsatisfactory conditions have been corrected.
- 133 3.2 INSTALLATION
- 134 A. Hardware: For installation, see Division 08 Section "Door Hardware."
- 135 B. Installation Instructions: Install doors to comply with manufacturer's written instructions and
136 the referenced quality standard, and as indicated.
- 137 C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated
138 below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-
139 rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises
140 after fitting and machining.
- 141 1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors.
142 Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or
143 covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4
144 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
- 145 a. Comply with NFPA 80 for fire-rated doors.
- 146 2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
147 3. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and
148 rails only to extent permitted by labeling agency.
- 149 D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- 150 E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at
151 Project site.
- 152 3.3 ADJUSTING
- 153 A. Operation: Rehang or replace doors that do not swing or operate freely.
- 154 B. Finished Doors: Replace doors that are damaged or that do not comply with requirements.
155 Doors may be repaired or refinished if work complies with requirements and shows no evidence
156 of repair or refinishing.
- 157 END OF SECTION 081416

1 SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Exterior and interior aluminum-framed storefronts.
9 a. Glazing is retained mechanically with gaskets on four sides .
10 2. Exterior and interior manual-swing aluminum doors.
11 3. Exterior and interior aluminum door frames.

- 12 B. Related Sections include the following:

- 13 1. Division 07 Section "Joint Sealants" for installation of joint sealants installed with
14 aluminum-framed systems and for sealants to the extent not specified in this Section.
15 2. Division 08 Section "Door Hardware" for hardware to the extent not specified in this
16 Section.
17 3. Division 08 Section "Glazing" for glazing requirements to the extent not specified in this
18 Section.

19 1.3 PERFORMANCE REQUIREMENTS

- 20 A. General: Provide aluminum-framed systems, including anchorage, capable of withstanding,
21 without failure, the effects of the following:

- 22 1. Structural loads.
23 2. Thermal movements.
24 3. Movements of supporting structure indicated on Drawings including, but not limited to,
25 story drift and deflection from uniformly distributed and concentrated live loads.
26 4. Dimensional tolerances of building frame and other adjacent construction.
27 5. Failure includes the following:
28 a. Deflection exceeding specified limits.
29 b. Thermal stresses transferred to building structure.
30 c. Framing members transferring stresses, including those caused by thermal and
31 structural movements, to glazing.
32 d. Glazing-to-glazing contact.
33 e. Noise or vibration created by wind and thermal and structural movements.

- 34 f. Loosening or weakening of fasteners, attachments, and other components.
35 g. Sealant failure.
36 h. Failure of operating units to function properly.
- 37 B. Structural Loads:
- 38 1. Wind Loads: As indicated on Drawings.
39 2. Seismic Loads: Category “D”.
- 40 C. Deflection of Framing Members:
- 41 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6
42 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than
43 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing
44 lites to 3/4 inch (19 mm), whichever is less.
45 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch (3.2
46 mm), whichever is smaller.
- 47 D. Structural-Test Performance: Provide aluminum-framed systems tested according to
48 ASTM E 330 as follows:
- 49 1. When tested at positive and negative wind-load design pressures, systems do not
50 evidence deflection exceeding specified limits.
51 2. When tested at 150 percent of positive and negative wind-load design pressures, systems,
52 including anchorage, do not evidence material failures, structural distress, and permanent
53 deformation of main framing members exceeding 0.2 percent of span.
54 3. Test Durations: As required by design wind velocity but not less than 10 seconds.
- 55 E. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements
56 resulting from the following maximum change (range) in ambient and surface temperatures.
57 Base engineering calculation on surface temperatures of materials due to both solar heat gain
58 and nighttime-sky heat loss.
- 59 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C),
60 material surfaces.
- 61 F. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed
62 glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested
63 according to ASTM E 283 at a minimum static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa)
64 6.24 lbf/sq. ft. (300 Pa) .
- 65 G. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not
66 evidence water penetration through fixed glazing and framing areas when tested according to
67 ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load
68 design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
- 69 H. Average Thermal Conductance: Provide aluminum-framed systems with fixed glazing and
70 framing areas having average U-factor of not more than 0.69 Btu/sq. ft. x h x deg F (3.92 W/sq.
71 m x K) when tested according to AAMA 1503.

- 72 1.4 SUBMITTALS
- 73 A. Product Data: Include construction details, material descriptions, dimensions of individual
74 components and profiles, and finishes for each type of product indicated.
- 75 B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details,
76 and attachments to other work.
- 77 1. Include structural analysis data signed and sealed by the qualified professional engineer
78 responsible for their preparation.
- 79 2. Include details of provisions for system expansion and contraction and for draining
80 moisture occurring within the system to the exterior.
- 81 3. For entrances, include hardware schedule and indicate operating hardware types,
82 functions, quantities, and locations.
- 83 C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard
84 sizes.
- 85 D. Fabrication Sample: Of each vertical-to-horizontal intersection of systems, made from 12-inch
86 (300-mm) lengths of full-size components and showing details of the following:
- 87 1. Joinery.
- 88 2. Anchorage.
- 89 3. Expansion provisions.
- 90 4. Glazing.
- 91 5. Flashing and drainage.
- 92 E. Welding certificates.
- 93 F. Qualification Data: For Installer.
- 94 G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified
95 testing agency, for aluminum-framed systems.
- 96 H. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
- 97 I. Warranties: Special warranties specified in this Section.
- 98 1.5 QUALITY ASSURANCE
- 99 A. Installer Qualifications: Capable of assuming engineering responsibility and performing work
100 of this Section and who is acceptable to manufacturer.
- 101 1. Engineering Responsibility: Preparation of data for aluminum-framed systems including
102 Shop Drawings based on testing and engineering analysis of manufacturer's standard
103 units in assemblies similar to those indicated for this Project and submission of reports of
104 tests performed on manufacturer's standard assemblies.
- 105 B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 699 for
106 testing indicated.

107 C. Product Options: Information on Drawings and in Specifications establishes requirements for
108 systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by
109 dimensions, arrangements, alignment, and profiles of components and assemblies as they relate
110 to sightlines, to one another, and to adjoining construction. Performance characteristics are
111 indicated by criteria subject to verification by one or more methods including preconstruction
112 testing, field testing, and in-service performance.

113 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with
114 Architect's approval. If modifications are proposed, submit comprehensive explanatory
115 data to Architect for review.

116 D. Accessible Entrances: Comply with the U.S. Architectural & Transportation Barriers
117 Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for
118 Buildings and Facilities (ADAAG)." .

119 E. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural Welding
120 Code--Aluminum."

121 1.6 PROJECT CONDITIONS

122 A. Field Measurements: Verify actual locations of structural supports for aluminum-framed
123 systems by field measurements before fabrication and indicate measurements on Shop
124 Drawings.

125 1. Established Dimensions: Where field measurements cannot be made without delaying
126 the Work, establish dimensions and proceed with fabricating aluminum-framed systems
127 without field measurements. Coordinate construction to ensure that actual dimensions
128 correspond to established dimensions.

129 1.7 WARRANTY

130 A. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to
131 repair or replace components of aluminum-framed systems that do not comply with
132 requirements or that deteriorate as defined in this Section within specified warranty period.

133 1. Failures include, but are not limited to, the following:

- 134 a. Structural failures including, but not limited to, excessive deflection.
- 135 b. Noise or vibration caused by thermal movements.
- 136 c. Deterioration of metals, **metal finishes**, and other materials beyond normal
137 weathering.
- 138 d. Adhesive or cohesive sealant failures.
- 139 e. Water leakage through fixed glazing and framing areas.
- 140 f. Failure of operating components to function properly.

141 2. Warranty Period: Two Five 10 years from date of Substantial Completion.

142 B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair
143 or replace components on which finishes fail within specified warranty period. Warranty does
144 not include normal weathering.

145 1. Warranty Period: 20 years from date of Substantial Completion.

146 PART 2 - PRODUCTS

147 2.1 MANUFACTURERS

148 A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering
149 products that may be incorporated into the Work include, but are not limited to, the following:

150 B. Manufacturers: Subject to compliance with requirements, provide products by one of the
151 following:

152 C. Basis-of-Design Product: The design for aluminum-framed systems is based on Kawneer
153 Trifabl VG 451. Subject to compliance with requirements, provide the named product or a
154 comparable product by one of the following:

- 155 1. Arch Aluminum & Glass Co., Inc.
- 156 2. CMI Architectural Products, Inc.
- 157 3. Commercial Architectural Products, Inc.
- 158 4. EFCO Corporation.
- 159 5. Kawneer.
- 160 6. Pittco Architectural Metals, Inc.
- 161 7. Tubelite Inc.
- 162 8. United States Aluminum.
- 163 9. Vistawall Architectural Products.
- 164 10. YKK AP America Inc.

165 2.2 MATERIALS

166 A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish
167 indicated.

- 168 1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
- 169 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
- 170 3. Extruded Structural Pipe and Tubes: ASTM B 429.
- 171 4. Structural Profiles: ASTM B 308/B 308M.
- 172 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

173 B. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with
174 SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment.
175 Select surface preparation methods according to recommendations in SSPC-SP COM and
176 prepare surfaces according to applicable SSPC standard.

177 1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.

- 178 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
179 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.
- 180 2.3 FRAMING SYSTEMS
- 181 A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness
182 required and reinforced as required to support imposed loads.
- 183 1. Construction: Framing members are composite assemblies of two separate extruded-
184 aluminum components permanently bonded by an elastomeric material of low thermal
185 conductance .
- 186 B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with
187 nonstaining, nonferrous shims for aligning system components.
- 188 C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining,
189 nonbleeding fasteners and accessories compatible with adjacent materials.
- 190 1. Where fasteners are subject to loosening or turning out from thermal and structural
191 movements, wind loads, or vibration, use self-locking devices.
192 2. Reinforce members as required to receive fastener threads.
193 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing
194 system .
- 195 D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts
196 complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- 197 E. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing
198 compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to
199 match framing and of sufficient thickness to maintain a flat appearance without visible
200 deflection.
- 201 F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer
202 for joint type.
- 203 2.4 GLAZING SYSTEMS
- 204 A. Glazing: As specified in Division 08 Section "Glazing."
- 205 B. Glazing Gaskets: Manufacturer's standard compression types, replaceable, molded or extruded,
206 that maintain uniform pressure and watertight seal.
- 207 C. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.
- 208 D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to
209 which sealants will not develop adhesion.

- 210 2.5 DOORS
- 211 A. Doors: Manufacturer's standard glazed doors, for manual swing operation.
- 212 1. Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch-
213 (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically
214 fasten corners with reinforcing brackets that are deep penetration and fillet welded or that
215 incorporate concealed tie rods.
- 216 a. Thermal Construction: High-performance plastic connectors separate aluminum
217 members exposed to the exterior from members exposed to the interior .
- 218 2. Door Design: Wide stile; 5-inch (127-mm) nominal width .
- 219 a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches
220 (255 mm) above floor or ground plane.
- 221 3. Glazing Stops and Gaskets: Beveled, Square, snap-on, extruded-aluminum stops and
222 preformed gaskets.
- 223 a. Provide nonremovable glazing stops on outside of door.
- 224 B. Door Hardware: As specified in Division 08 Section "Door Hardware."
- 225 2.6 DOOR HARDWARE
- 226 A. See Section 087100 "Door Hardware" for all hardware for wood doors installed in aluminum
227 frames. This section deals only with aluminum glass doors installed in aluminum frames.
- 228 B. General: Provide heavy-duty units in sizes and types recommended by entrance system and
229 hardware manufacturers for entrances and uses indicated.
- 230 1. Opening-Force Requirements:
- 231 a. Egress Doors: Not more than 30 lbf (133 N) required to set door in motion and not
232 more than 15 lbf (67 N) required to open door to minimum required width.
- 233 b. Accessible Interior Doors: Not more than 5 lbf (22.2 N).
- 234 C. Scheduled Door Hardware: Provide door hardware according to the Door Hardware Schedule
235 at the end of Part 3.
- 236 1. Named Manufacturer's Products: Product designation and hardware manufacturer are
237 listed in the Door Hardware Schedule at the end of Part 3 to establish minimum
238 requirements for design, grade, function, finish, size, and other distinctive qualities of
239 each type of door hardware.
- 240 a. Named products are basis-of-design products. Provide named hardware
241 manufacturer's products or comparable products that are equivalent in function and
242 quality and that are recommended and supplied by entrance system manufacturer.

- 243 2. References to BHMA Standards: Provide products complying with standards referenced
244 in this Article and with requirements for description, quality, type, and function listed in
245 the Door Hardware Schedule at the end of Part 3.
- 246 D. Ball-Bearing Butts:
- 247 1. Standard: BHMA A156.1, Grade 1, radius corner.
248 2. Provide nonremovable pins at hinges exposed to outside of door.
249 3. Provide nonferrous hinges where hinges are exposed to weather.
250 4. Quantities:
- 251 a. For doors with heights up to 87 inches (2210 mm), provide 3 hinges per leaf.
- 252 E. Locking Devices, General: Do not require use of key, tool, or special knowledge for operation.
- 253 1. Opening-Force Requirements:
- 254 F. Cylinders: As specified in Division 08 Section "Door Hardware."
- 255 G. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for
256 aluminum framing.
- 257 H. Operating Trim: BHMA A156.6.
- 258 I. Closers: With accessories required for a complete installation, sized as required by door size,
259 exposure to weather, and anticipated frequency of use, and adjustable to meet field conditions
260 and requirements for opening force.
- 261 1. Standard: BHMA A156.4, Grade 1.
- 262 J. Door Stops: BHMA A156.16, Grade 1, floor or wall mounted, as appropriate for door location
263 indicated, with integral rubber bumper.
- 264 K. Weather Stripping: Manufacturer's standard replaceable components.
- 265 1. Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with
266 nylon-fabric or aluminum-strip backing.
- 267 L. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners
268 on mounting strip.
- 269 M. Thresholds: Raised thresholds beveled with a slope of not more than 1:2, with maximum height
270 of 1/2 inch (13 mm).
- 271 1. Standard: BHMA A156.21.
- 272 2.7 ACCESSORY MATERIALS
- 273 A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in
274 Division 07 Section "Joint Sealants."

- 275 2.8 FABRICATION
- 276 A. Form aluminum shapes before finishing.
- 277 B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration
278 of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or
279 grinding.
- 280 C. Framing Members, General: Fabricate components that, when assembled, have the following
281 characteristics:
- 282 1. Profiles that are sharp, straight, and free of defects or deformations.
283 2. Accurately fitted joints with ends coped or mitered.
284 3. Means to drain water passing joints, condensation occurring within framing members,
285 and moisture migrating within the system to exterior.
286 4. Physical and thermal isolation of glazing from framing members.
287 5. Accommodations for thermal and mechanical movements of glazing and framing to
288 maintain required glazing edge clearances.
289 6. Fasteners, anchors, and connection devices that are concealed from view to greatest
290 extent possible.
- 291 D. Mechanically Glazed Framing Members: Fabricate for flush glazing (without projecting stops).
- 292 E. Door Frames: Reinforce as required to support loads imposed by door operation and for
293 installing hardware.
- 294 1. At exterior doors, provide compression weather stripping at fixed stops.
295 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install
296 three silencers on strike jamb of single-door frames and two silencers on head of frames
297 for pairs of doors.
298 3. At interior aluminum frames supporting wood doors, provide silencers at stops to prevent
299 metal to metal contact. Install three silencers on strike jamb of single-door frames and
300 two silencers on head of frames for pairs of doors.
- 301 F. Doors: Reinforce doors as required for installing hardware.
- 302 1. At exterior doors, provide weather sweeps applied to door bottoms.
- 303 G. Hardware Installation: Factory install hardware to the greatest extent possible. Cut, drill, and
304 tap for factory-installed hardware before applying finishes.
- 305 H. After fabrication, clearly mark components to identify their locations in Project according to
306 Shop Drawings.
- 307 2.9 ALUMINUM FINISHES
- 308 A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal
309 Products" for recommendations for applying and designating finishes.

310 B. Finish designations prefixed by AA comply with the system established by the Aluminum
311 Association for designating aluminum finishes.

312 C. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as
313 fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II,
314 integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying
315 with AAMA 611.

316 2.10 SOURCE QUALITY CONTROL

317 A. Structural-Sealant-Glazed Systems: Perform quality-control procedures complying with
318 ASTM C 1401 recommendations including, but not limited to, system material qualification
319 procedures, sealant testing, and system fabrication reviews and checks.

320 PART 3 - EXECUTION

321 3.1 EXAMINATION

322 A. Examine areas, with Installer present, for compliance with requirements for installation
323 tolerances and other conditions affecting performance of work.

324 1. Proceed with installation only after unsatisfactory conditions have been corrected.

325 3.2 INSTALLATION

326 A. General:

- 327 1. Comply with manufacturer's written instructions.
- 328 2. Do not install damaged components.
- 329 3. Fit joints to produce hairline joints free of burrs and distortion.
- 330 4. Rigidly secure nonmovement joints.
- 331 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic
332 deterioration.
- 333 6. Seal joints watertight, unless otherwise indicated.

334 B. Metal Protection:

- 335 1. Where aluminum will contact dissimilar metals, protect against galvanic action by
336 painting contact surfaces with primer or by applying sealant or tape or installing
337 nonconductive spacers as recommended by manufacturer for this purpose.
- 338 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting
339 contact surfaces with bituminous paint.

340 C. Install components to drain water passing joints, condensation occurring within framing
341 members, and moisture migrating within the system to exterior.

- 342 D. Set continuous sill members and flashing in full sealant bed as specified in Division 07 Section
343 "Joint Sealants" and to produce weathertight installation.
- 344 E. Install components plumb and true in alignment with established lines and grades, without warp
345 or rack.
- 346 F. Install glazing as specified in Division 08 Section "Glazing."
- 347 G. Entrances: Install to produce smooth operation and tight fit at contact points.
- 348 1. Exterior Entrances: Install to produce tight fit at weather stripping and weathertight
349 closure.
- 350 2. Field-Installed Hardware: Install surface-mounted hardware according to hardware
351 manufacturers' written instructions using concealed fasteners to greatest extent possible.
- 352 H. Install perimeter joint sealants as specified in Division 07 Section "Joint Sealants" and to
353 produce weathertight installation.
- 354 I. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum
355 tolerances:
- 356 1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3
357 mm in 3.7 m); 1/4 inch (6 mm) over total length.
- 358 2. Alignment:
- 359 a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
360 b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8
361 mm).
- 362 3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8 inch (3
363 mm).
- 364 3.3 ADJUSTING
- 365 A. Entrances: Adjust operating hardware for smooth operation according to hardware
366 manufacturers' written instructions.
- 367 1. For doors accessible to people with disabilities, adjust closers to provide a 3-second
368 closer sweep period for doors to move from a 70-degree open position to 3 inches (75
369 mm) from the latch measured to the leading door edge.
- 370 END OF SECTION 084113

1 SECTION 087100 - DOOR HARDWARE

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Commercial door hardware for the following:

- 9 a. Swinging doors.

- 10 2. Cylinders for doors specified in other Sections.

- 11 B. Related Sections include the following:

- 12 1. Division 08 Section "Aluminum-Framed Entrances and Storefronts" for entrance door
13 hardware, [except] cylinders.

- 14 C. Products furnished, but not installed, under this Section include the following. Coordinating,
15 purchasing, delivering, and scheduling remain requirements of this Section.

- 16 1. **cylinders for locks** specified in other Sections.

- 17 2. Permanent cores to be installed by Owner.

18 1.3 SUBMITTALS

- 19 A. Product Data: Include construction and installation details, material descriptions, dimensions of
20 individual components and profiles, and finishes.

- 21 B. Samples for Initial Selection: For each finish, color, and texture required for each type of door
22 hardware indicated.

- 23 C. Samples for Verification: Submit Samples of each type of finish required, except primed finish.

- 24 D. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include
25 final hardware schedule.

- 26 E. Warranty: Special warranty specified in this Section.

- 27 F. Other Action Submittals:

- 28 1. Door Hardware Sets: Prepared by Architectural Hardware Consultant. Coordinate the
29 final door hardware sets with doors, frames, and related work to ensure proper size,
30 thickness, hand, function, and finish of door hardware.
- 31 a. Format: Comply with scheduling sequence and vertical format in DHI's
32 "Sequence and Format for the Hardware Schedule."
33 b. Format: Use same scheduling sequence and format as in the Contract Documents.
34 c. Content: Include the following information:
- 35 1) Identification number, location, hand, fire rating, and material of each door
36 and frame.
37 2) Type, style, function, size, quantity, and finish of each door hardware item.
38 3) Complete designations of every item required for each door or opening
39 including name and manufacturer.
40 4) Location of each door hardware set, cross-referenced to Drawings, both on
41 floor plans and in door and frame schedule.
42 5) Explanation of abbreviations, symbols, and codes contained in schedule.
43 6) Door and frame sizes and materials.
- 44 7) List of related door devices specified in other Sections for each door and
45 frame.
- 46 d. Submittal Sequence: Submit the final door hardware sets at earliest possible date,
47 particularly where approval of the door hardware sets must precede fabrication of
48 other work that is critical in Project construction schedule.
49 e. Submittal Sequence: Submit initial draft of final schedule along with essential
50 Product Data to facilitate the fabrication of other work that is critical in Project
51 construction schedule. Submit the final door hardware sets after Samples, Product
52 Data, coordination with Shop Drawings of other work, delivery schedules, and
53 similar information has been completed and accepted.
- 54 2. Keying Schedule: Prepared by Owner detailing Owner's final keying instructions for
55 locks. Include schematic keying diagram and index each key set to unique door
56 designations.

57 1.4 QUALITY ASSURANCE

- 58 A. Architectural Hardware Consultant Qualifications: A person who is currently certified by DHI
59 as an Architectural Hardware Consultant and who is experienced in providing consulting
60 services for door hardware installations that are comparable in material, design, and extent to
61 that indicated for this Project.
- 62 B. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer,
63 unless otherwise indicated.

64 1.5 DELIVERY, STORAGE, AND HANDLING

- 65 A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to
66 Project site.

- 67 B. Deliver keys and permanent cores to Owner by registered mail or overnight package service.
- 68 1.6 COORDINATION
- 69 A. Templates: Distribute door hardware templates for doors, frames, and other work specified to
70 be factory prepared for installing door hardware. Check Shop Drawings of other work to
71 confirm that adequate provisions are made for locating and installing door hardware to comply
72 with indicated requirements.
- 73 1.7 WARRANTY
- 74 A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or
75 replace components of door hardware that fail in materials or workmanship within specified
76 warranty period.
- 77 1. Failures include, but are not limited to, the following:
- 78 a. Structural failures including excessive deflection, cracking, or breakage.
79 b. Faulty operation of operators and door hardware.
80 c. Deterioration of metals, metal finishes, and other materials beyond normal
81 weathering and use.
- 82 2. Warranty Period: Three years from date of Substantial Completion, except as follows:
83 a. Exit Devices: Two years from date of Substantial Completion.
84 b. Manual Closers: 10 years from date of Substantial Completion.
- 85 1.8 MAINTENANCE SERVICE
- 86 A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and
87 maintenance instructions as needed for Owner's continued adjustment, maintenance, and
88 removal and replacement of door hardware.
- 89 PART 2 - PRODUCTS
- 90 2.1 SCHEDULED DOOR HARDWARE
- 91 A. General: Provide door hardware for each door to comply with requirements in this Section and
92 door hardware sets indicated in door and frame schedule.
- 93 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and products
94 complying with BHMA standard referenced..
- 95 B. In other Part 2 articles where titles below introduce lists, the following requirements apply to
96 product selection:

97 1. Available Manufacturers: Subject to compliance with requirements, manufacturers
98 offering products that may be incorporated into the Work include, but are not limited to,
99 manufacturers specified.

100 2.2 HINGES, GENERAL

101 A. Quantity: Provide the following, unless otherwise indicated:

- 102 1. Two Hinges: For doors with heights up to 60 inches (1524 mm).
103 2. Three Hinges: For doors with heights 61 to 90 inches (1549 to 2286 mm).
104 3. Four Hinges: For doors with heights 91 to 120 inches (2311 to 3048 mm).
105 4. For doors with heights more than 120 inches (3048 mm), provide 4 hinges, plus 1 hinge
106 for every 30 inches (750 mm) of door height greater than 120 inches (3048 mm).

107 B. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into
108 wood doors and frames, provide only template-produced units.

109 C. Hinge Weight: Unless otherwise indicated, provide the following:

- 110 1. Antifriction – bearing hinges at all openings.

111 D. Hinge Base Metal: Unless otherwise indicated, provide the following:

- 112 1. All door Hinges: Steel, with steel pin

113 E. Hinge Options: Where indicated in door hardware sets or on Drawings:

- 114 1. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove
115 in hinge pin, prevents removal of pin while door is closed; for outswinging exterior
116 doors.
117 2. Corners: Square.

118 F. Fasteners: Comply with the following:

- 119 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
120 2. Screws: Phillips flat-head; machine screws (drilled and tapped holes) for metal doors]
121 [wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

122 2.3 HINGES

123 A. Butts and Hinges: BHMA A156.1. Listed under Category A in BHMA's "Certified Product
124 Directory."

125 B. Available Manufacturers:

- 126 1. Bommer Industries, Inc. (BI).
127 2. Hager Companies (HAG).
128 3. McKinney Products Company; an ASSA ABLOY Group company (MCK).
129 4. Stanley Commercial Hardware; Div. of The Stanley Works (STH).

- 130 2.4 LOCKS AND LATCHES, GENERAL
- 131 A. Accessibility Requirements: Where indicated to comply with accessibility requirements,
132 comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans
133 with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- 134 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the
135 wrist and that operate with a force of not more than 5 lbf (22 N).
- 136 B. Latches and Locks for Means of Egress Doors: Comply with NFPA 101. Latches shall not
137 require more than 15 lbf (67 N) to release the latch. Locks shall not require use of a key, tool,
138 or special knowledge for operation.
- 139 C. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire
140 doors, and as follows:
- 141 1. Bored Locks: Minimum 9/16" latchbolt throw.
- 142 D. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
- 143 E. Strikes: Manufacturer's standard strike with strike box for each latchbolt or lock bolt, with
144 curved lip extended to protect frame, finished to match door hardware set, and as follows:
- 145 1. Strikes for Bored Locks and Latches: BHMA A156.2.
- 146 2.5 MECHANICAL LOCKS AND LATCHES
- 147 A. Lock Functions: Function numbers and descriptions indicated in door hardware sets comply
148 with the following:
- 149 1. Bored Locks: ANSI A156.2.
- 150 B. Bored Locks: ANSI A156.2, Grade 1 Series 4000.
- 151 1. Available Manufacturers:
152 a. Best Access Systems; Div. of The Stanley Works (BAS). – 93K Series.
153 b. Falcon Lock; an Ingersoll-Rand Company (FAL).
154 c. Schlage Commercial Lock Division; an Ingersoll-Rand Company (SCH).
- 155 2.6 LOCK CYLINDERS
- 156 A. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless
157 steel, or nickel silver, and complying with the following:
- 158 1. Number of Pins: Seven.
- 159 B. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the
160 following:

- 161 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other
162 manufacturers' cylinders.
- 163 C. Construction Keying: Comply with the following:
164 1. Construction Cores: Provide construction cores that are replaceable by permanent cores.
165 Provide 10 construction master keys.
- 166 a. Replace construction cores with permanent cores as directed by Owner.
167 b. Furnish permanent cores to Owner for installation.
- 168 D. Manufacturers:
169 1. New locks must operate w/ existing USC restricted keyway system – master,
170 grandmaster, service etc.
- 171 2.7 KEYING
- 172 A. Keying System:
173 1. Existing System: Master key or grand master key locks to Owner's existing system.
- 174 B. Keys: Nickel silver.
- 175 1. Stamping: Permanently inscribe each key with a visual key control number and include
176 the following notation:
- 177 a. Notation: **"DO NOT DUPLICATE." Information to be furnished by Owner.**
- 178 2. Quantity:
179 a. Cylinder Change Keys: Two.
- 180 2.8 CLOSERS
- 181 A. Accessibility Requirements: Where handles, pulls, latches, locks, and other operating devices
182 are indicated to comply with accessibility requirements, comply with the U.S. Architectural &
183 Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA),
184 Accessibility Guidelines for Buildings and Facilities (ADAAG)."
- 185 1. Comply with the following maximum opening-force requirements:
- 186 a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to
187 door.
188 b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
- 189 B. Door Closers for Means of Egress Doors: Comply with NFPA 101. Door closers shall not
190 require more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open
191 door to minimum required width.
- 192 C. Size of Units: Unless otherwise indicated, comply with manufacturer's written
193 recommendations for size of door closers depending on size of door, exposure to weather, and

194 anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions
195 and requirements for opening force.

196 D. Surface Closers: Provide type of arm required for closer to be located on non-public side of
197 door, unless otherwise indicated.

- 198 1. Available Manufacturers:
199 a. DORMA Architectural Hardware; Member of The DORMA Group North America
200 (DAH).
201 b. Dor-O-Matic; an Ingersoll-Rand Company (DOR).
202 c. LCN Closers; an Ingersoll-Rand Company (LCN).

203 2.9 STOPS AND HOLDERS

204 A. Stops and Bumpers: BHMA A156.16, Grade 1 , Grade 2 , Grade 1 unless Grade 2 is indicated.

- 205 1. Provide floor stops for doors unless wall or other type stops are scheduled or indicated.
206 Do not mount floor stops where they will impede traffic. Where floor or wall stops are
207 not appropriate, provide overhead holders.

208 B. Silencers for Metal Door Frames: BHMA A156.16, Grade 1; neoprene or rubber, minimum
209 diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame.

- 210 C. Available Manufacturers:
211 1. Hager Companies (HAG).
212 2. IVES Hardware; an Ingersoll-Rand Company (IVS).
213 3. Rockwood Manufacturing Company (RM).
214 4. Trimco (TBM).

215 2.10 THRESHOLDS

216 A. Standard: BHMA A156.21. Listed under Category J in BHMA's "Certified Product Directory."

217 B. Accessibility Requirements: Where thresholds are indicated to comply with accessibility
218 requirements, comply with the U.S. Architectural & Transportation Barriers Compliance
219 Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and
220 Facilities (ADAAG)."

- 221 1. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more
222 than **1/2 inch (13 mm) high** .

223 C. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch (13 mm)
224 high.

225 D. Available Manufacturers:

- 226 1. Hager Companies (HAG).
227 2. National Guard Products (NGP).
228 3. Pemko Manufacturing Co. (PEM).

- 229 4. Reese Enterprises (RE).
230 5. Zero International (ZRO).
- 231 2.11 FABRICATION
- 232 A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade
233 name displayed in a visible location except in conjunction with required fire-rated labels and as
234 otherwise approved by Architect.
- 235 1. Manufacturer's identification is permitted on rim of lock cylinders only.
- 236 B. Base Metals: Produce door hardware units of base metal, fabricated by forming method
237 indicated, using manufacturer's standard metal alloy, composition, temper, and hardness.
238 Furnish metals of a quality equal to or greater than that of specified door hardware units and
239 BHMA A156.18. Do not furnish manufacturer's standard materials or forming methods if
240 different from specified standard.
- 241 C. Fasteners: Provide door hardware manufactured to comply with published templates generally
242 prepared for machine, wood, and sheet metal screws. Provide screws according to
243 commercially recognized industry standards for application intended, except aluminum
244 fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match
245 surface of door hardware, unless otherwise indicated.
- 246 1. Concealed Fasteners: For door hardware units that are exposed when door is closed,
247 except for units already specified with concealed fasteners. Do not use through bolts for
248 installation where bolt head or nut on opposite face is exposed unless it is the only means
249 of securely attaching the door hardware. Where through bolts are used on hollow door
250 and frame construction, provide sleeves for each through bolt.
- 251 2. Steel Machine or Wood Screws: For the following fire-rated applications:
- 252 a. Mortise hinges to doors.
253 b. Strike plates to frames.
254 c. Closers to doors and frames.
- 255 3. Steel Through Bolts: For the following fire-rated applications unless door blocking is
256 provided:
- 257 a. Surface hinges to doors.
258 b. Closers to doors and frames.
259 c. Surface-mounted exit devices.
- 260 4. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
261 5. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended
262 Fasteners for Wood Doors."

263 2.12 FINISHES

- 264 A. Standard: BHMA A156.18, as indicated in door hardware sets. US 26D or closetst to US26D

265 B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable,
266 temporary protective covering before shipping.

267 C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are
268 acceptable if they are within one-half of the range of approved Samples. Noticeable variations
269 in the same piece are not acceptable. Variations in appearance of other components are
270 acceptable if they are within the range of approved Samples and are assembled or installed to
271 minimize contrast.

272 PART 3 - EXECUTION

273 3.1 EXAMINATION

274 A. Examine doors and frames, with Installer present, for compliance with requirements for
275 installation tolerances, labeled fire door assembly construction, wall and floor construction, and
276 other conditions affecting performance.

277 B. Proceed with installation only after unsatisfactory conditions have been corrected.

278 3.2 PREPARATION

279 A. Steel Doors and Frames: Comply with DHI A115 Series.

280 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to
281 ANSI A250.6.

282 2. Drill both door faces according to manufacturer's template.

283 B. Wood Doors: Comply with DHI A115-W Series.

284 3.3 INSTALLATION

285 A. Mounting Heights: Mount door hardware units at heights indicated [**on Drawings**] [**as follows**]
286 unless otherwise indicated or required to comply with governing regulations.

287 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural
288 Hardware for Standard Steel Doors and Frames."

289 2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders'
290 Hardware for Custom Steel Doors and Frames."

291 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for
292 Wood Flush Doors."

293 B. Install each door hardware item to comply with manufacturer's written instructions. Where
294 cutting and fitting are required to install door hardware onto or into surfaces that are later to be
295 painted or finished in another way, coordinate removal, storage, and reinstallation of surface
296 protective trim units with finishing work specified in Division 09 Sections. Do not install
297 surface-mounted items until finishes have been completed on substrates involved.

- 298 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment
299 substrates as necessary for proper installation and operation.
300 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space
301 fasteners and anchors according to industry standards.

302 C. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying
303 with requirements specified in Division 07 Section "Joint Sealants."

304 3.4 ADJUSTING

305 A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to
306 ensure proper operation or function of every unit. Replace units that cannot be adjusted to
307 operate as intended. Adjust door control devices to compensate for final operation of heating
308 and ventilating equipment and to comply with referenced accessibility requirements.

- 309 1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely
310 from an open position of 30 degrees.
311 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage
312 lock bolt.
313 3. Door Closers: Unless otherwise required by authorities having jurisdiction, adjust sweep
314 period so that, from an open position of 70 degrees, the door will take at least 3 seconds
315 to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the
316 door.

317 B. Occupancy Adjustment: Approximately **six** months after date of Substantial Completion,
318 Installer's Architectural Hardware Consultant shall examine and readjust, including adjusting
319 operating forces, each item of door hardware as necessary to ensure function of doors, door
320 hardware, and electrified door hardware.

321 3.5 CLEANING AND PROTECTION

322 A. Clean adjacent surfaces soiled by door hardware installation.

323 B. Clean operating items as necessary to restore proper function and finish.

324 C. Provide final protection and maintain conditions that ensure that door hardware is without
325 damage or deterioration at time of Substantial Completion.

326 END OF SECTION 087100

1 SECTION 088000 - GLAZING

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes glazing for the following products and applications, including those
8 specified in other Sections where glazing requirements are specified by reference to this
9 Section:
- 10 1. Doors.
 - 11 2. Glazed entrances.
 - 12 3. Interior borrowed lites.
 - 13 4. Storefront framing.

14 1.3 DEFINITIONS

- 15 A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as
16 defined in referenced glazing publications.
- 17 B. Glass Thicknesses: Indicated by thickness designations in millimeters according to
18 ASTM C 1036.
- 19 C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a
20 specified gas.
- 21 D. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the
22 manufacturing process and not to causes other than glass breakage and practices for maintaining
23 and cleaning coated glass contrary to manufacturer's written instructions. Defects include
24 peeling, cracking, and other indications of deterioration in metallic coating.
- 25 E. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to
26 the manufacturing process and not to causes other than glass breakage and practices for
27 maintaining and cleaning insulating glass contrary to manufacturer's written instructions.
28 Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of
29 glass.
- 30 F. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the
31 manufacturing process and not to causes other than glass breakage and practices for maintaining
32 and cleaning laminated glass contrary to manufacturer's written instructions. Defects include
33 edge separation, delamination materially obstructing vision through glass, and blemishes
34 exceeding those allowed by referenced laminated-glass standard.

- 35 1.4 PERFORMANCE REQUIREMENTS
- 36 A. General: Provide glazing systems capable of withstanding normal thermal movement and wind
37 and impact loads (where applicable) without failure, including loss or glass breakage
38 attributable to the following: defective manufacture, fabrication, and installation; failure of
39 sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other
40 defects in construction.
- 41 B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only.
42 Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass
43 lites in the thickness designations indicated for various size openings, but not less than
44 thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following
45 criteria:
- 46 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300,
47 according to the following requirements:
- 48 a. Specified Design Wind Loads: **<Insert design wind load> [As indicated]**, but
49 not less than wind loads applicable to Project as required by ASCE 7 "Minimum
50 Design Loads for Buildings and Other Structures" : Section 6.0 "Wind Loads."
- 51 b. Maximum Lateral Deflection: For the following types of glass supported on all 4
52 edges, provide thickness required that limits center deflection at design wind
53 pressure to 1/50 times the short side length or **1 inch (25 mm)**, whichever is less.
- 54 c. Minimum Glass Thickness for Exterior Lites: Not less than **6.0** mm.
- 55 d. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for
56 each tint color indicated throughout Project.
- 57 C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the
58 following maximum change (range) in ambient and surface temperatures acting on glass
59 framing members and glazing components. Base engineering calculation on surface
60 temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- 61 1. Temperature Change (Range): **120 deg F (67 deg C)**, ambient; **180 deg F (100 deg C)**,
62 material surfaces.
- 63 D. Thermal and Optical Performance Properties: Provide glass with performance properties
64 specified based on manufacturer's published test data, as determined according to procedures
65 indicated below:
- 66 1. For insulating-glass units, properties are based on units of thickness indicated for overall
67 unit and for each lite.
- 68 2. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program
69 for the following methodologies:
- 70 a. U-Factors: NFRC 100 expressed as **Btu/ sq. ft. x h x deg F (W/sq. m x K)**.
- 71 b. Solar Heat Gain Coefficient: NFRC 200.
- 72 c. Solar Optical Properties: NFRC 300.

- 73 1.5 SUBMITTALS
- 74 A. Product Data: For each glass product and glazing material indicated.
- 75 B. Samples: For the following products, in the form of **12-inch- (300-mm-)** square Samples for
76 glass.
- 77 1. Each color of tinted float glass.
- 78 2. Wired glass.
- 79 3. Insulating glass for each designation indicated.
- 80 C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in
81 preparing a schedule listing glass types and thicknesses for each size opening and location.
- 82 D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that
83 products furnished comply with requirements.
- 84 1. For solar-control low-e-coated glass, provide documentation demonstrating that
85 manufacturer of coated glass is certified by coating manufacturer.
- 86 E. Qualification Data: For installers.
- 87 F. Product Test Reports: For each of the following types of glazing products:
- 88 1. Tinted float glass.
- 89 2. Coated float glass.
- 90 3. Insulating glass.
- 91 4. Glazing sealants.
- 92 5. Glazing gaskets.
- 93 G. Warranties: Special warranties specified in this Section.
- 94 1.6 QUALITY ASSURANCE
- 95 A. Installer Qualifications: An experienced installer who has completed glazing similar in
96 material, design, and extent to that indicated for this Project; whose work has resulted in glass
97 installations with a record of successful in-service performance; and who employs glass
98 installers for this Project who are certified under the National Glass Association's Certified
99 Glass Installer Program.
- 100 B. Source Limitations for Glass: Obtain the following through one source from a single
101 manufacturer for each glass type: **clear float glass , insulating glass.**
- 102 C. Source Limitations for Glass Sputter-Coated with Solar-Control Low-E Coatings: Where solar-
103 control low-e coatings of a primary glass manufacturer that has established a certified fabricator
104 program is specified, obtain sputter-coated solar-control low-e-coated glass in fabricated units
105 from a manufacturer that is certified by coated-glass manufacturer.
- 106 D. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source
107 from a single manufacturer for each product and installation method indicated.

- 108 E. Glazing for Fire-Rated Door Assemblies: Glazing for assemblies that comply with NFPA 80
109 and that are listed and labeled by a testing and inspecting agency acceptable to authorities
110 having jurisdiction, for fire-protection ratings indicated, based on testing according to
111 NFPA 252.
- 112 F. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201[**and, for wired**
113 **glass, ANSI Z97.1**].
- 114 1. Subject to compliance with requirements, obtain safety glazing products permanently
115 marked with certification label of [**the Safety Glazing Certification Council or another**
116 **certification agency**] [**or**] [**manufacturer**] acceptable to authorities having jurisdiction.
- 117 2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2
118 articles for glazing lites more than **9 sq. ft. (0.84 sq. m)** in exposed surface area of one
119 side, provide glazing products that comply with Category II materials, for lites **9 sq. ft.**
120 **(0.84 sq. m)** or less in exposed surface area of one side, provide glazing products that
121 comply with Category I or II materials, except for hazardous locations where Category II
122 materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
- 123 G. Glazing Publications: Comply with published recommendations of glass product manufacturers
124 and organizations below, unless more stringent requirements are indicated. Refer to these
125 publications for glazing terms not otherwise defined in this Section or in referenced standards.
- 126 1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for
127 Sealed Insulating Glass Units."
- 128 H. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least
129 one component lite of units with appropriate certification label of the following testing and
130 inspecting agency:
- 131 1. Insulating Glass Certification Council.
132 2. Associated Laboratories, Inc.
- 133 1.7 DELIVERY, STORAGE, AND HANDLING
- 134 A. Protect glazing materials according to manufacturer's written instructions and as needed to
135 prevent damage to glass and glazing materials from condensation, temperature changes, direct
136 exposure to sun, or other causes.
- 137 B. For insulating-glass units that will be exposed to substantial altitude changes, comply with
138 insulating-glass manufacturer's written recommendations for venting and sealing to avoid
139 hermetic seal ruptures.
- 140 1.8 PROJECT CONDITIONS
- 141 A. Environmental Limitations: Do not proceed with glazing when ambient and substrate
142 temperature conditions are outside limits permitted by glazing material manufacturers and when
143 glazing channel substrates are wet from rain, frost, condensation, or other causes.

144 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions
145 are outside limits permitted by glazing sealant manufacturer or below 40 deg F (4.4
146 deg C).

147 1.9 WARRANTY

148 A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form,
149 made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass
150 units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to
151 Project site, within specified warranty period indicated below.

152 1. Warranty Period: [10] years from date of Substantial Completion.

153 B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out
154 to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units
155 that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project
156 site, within specified warranty period indicated below.

157 1. Warranty Period: [10] years from date of Substantial Completion.

158 PART 2 - PRODUCTS

159 2.1 MANUFACTURERS

160 A. In other Part 2 articles where titles below introduce lists, the following requirements apply to
161 product selection:

162 1. Manufacturers: Subject to compliance with requirements, provide products by one of the
163 manufacturers specified.

164 2.2 GLASS PRODUCTS

165 A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class
166 indicated.

167 B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class,
168 kind, and condition indicated.

169 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion
170 parallel to bottom edge of glass as installed, unless otherwise indicated.

171 2. Provide Kind HS (heat-strengthened) float glass in place of annealed float glass where
172 needed to resist thermal stresses induced by differential shading of individual glass lites
173 and to comply with glass design requirements specified in Part 1 "Performance
174 Requirements" Article.

175 3. For uncoated glass, comply with requirements for Condition A.

176 4. For coated vision glass, comply with requirements for Condition C (other uncoated
177 glass).

- 178 5. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-
179 strengthened) float glass where safety glass is indicated.
- 180 C. Sputter-Coated Float Glass: ASTM C 1376, float glass with metallic-oxide or -nitride coating
181 deposited by vacuum deposition process after manufacture and heat treatment (if any), and
182 complying with other requirements specified.
- 183 D. Coated Spandrel Float Glass: Float glass complying with other requirements specified and with
184 the following:
- 185 1. Fallout Resistance: Provide spandrel units identical to those passing the fallout-
186 resistance test for spandrel glass specified in ASTM C 1048.
- 187 2. Factory apply manufacturer's standard opacifier of the following material to coated forth
188 surface of insulated units, with resulting products complying with Specification No. 89-1-
189 6 in GANA Tempering Division's "Engineering Standards Manual."
- 190 a. Manufacturer's standard opacifier material.
- 191 b. Polyester film laminated to glass with solvent-based adhesive.
- 192 E. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass
193 separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units
194 and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.
- 195 1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed
196 to resist thermal stresses induced by differential shading of individual glass lites and to
197 comply with glass design requirements specified in Part 1 "Performance Requirements"
198 Article.
- 199 2. Provide Kind FT (fully tempered) glass lites where safety glass is indicated.
- 200 3. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-
201 glass units are nominal and the overall thicknesses of units are measured perpendicularly
202 from outer surfaces of glass lites at unit's edge.
- 203 4. Sealing System: Dual seal, with primary and secondary sealants as follows:
- 204 a. Manufacturer's standard sealants.
- 205 b. Polyisobutylene and polysulfide.
- 206 c. Polyisobutylene and silicone.
- 207 d. Polyisobutylene and hot-melt butyl.
- 208 e. Polyisobutylene and polyurethane.
- 209 5. Spacer Specifications: Manufacturer's standard spacer material and construction.
- 210 6. Spacer Specifications: Manufacturer's standard spacer material and construction
211 complying with the following requirements:
- 212 a. Spacer Material: Aluminum with mill or clear anodic finish.
- 213 b. Desiccant: Molecular sieve or silica gel, or blend of both.
- 214 c. Corner Construction: Manufacturer's standard corner construction.

- 215 2.3 FIRE-RATED GLAZING PRODUCTS
- 216 A. Film-Faced Ceramic Glazing Material: Proprietary Category II safety glazing product in the
217 form of a ~~3/16-inch~~ (5-mm) thick, ceramic glazing material polished on both surfaces, faced
218 on one surface with a clear glazing film, and as follows:
- 219 1. Fire-Protection Rating: As indicated for the assembly in which glazing material is
220 installed, and permanently labeled by a testing and inspecting agency acceptable to
221 authorities having jurisdiction.
- 222 2. Product: "FireLite NT" by Nippon Electric Glass Co., Ltd., and distributed by Technical
223 Glass Products.
- 224 2.4 GLAZING GASKETS
- 225 A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below,
226 complying with standards referenced with name of elastomer indicated below, and of profile
227 and hardness required to maintain watertight seal:
- 228 1. Neoprene, ASTM C 864.
229 2. EPDM, ASTM C 864.
230 3. Silicone, ASTM C 1115.
231 4. Thermoplastic polyolefin rubber, ASTM C 1115.
232 5. Any material indicated above.
- 233 B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of
234 material indicated below; complying with ASTM C 509, Type II, black; and of profile and
235 hardness required to maintain watertight seal:
- 236 1. Neoprene.
237 2. EPDM.
238 3. Silicone.
239 4. Thermoplastic polyolefin rubber.
240 5. Any material indicated above.
- 241 C. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames
242 with molded corner units and zipper lock-strips, complying with ASTM C 542, black.
- 243 2.5 MISCELLANEOUS GLAZING MATERIALS
- 244 A. General: Provide products of material, size, and shape complying with referenced glazing
245 standard, requirements of manufacturers of glass and other glazing materials for application
246 indicated, and with a proven record of compatibility with surfaces contacted in installation.
- 247 B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- 248 C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or
249 minus 5.

250 D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness
251 required by glass manufacturer to maintain glass lites in place for installation indicated.

252 E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side
253 walking).

254 F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and
255 density to control glazing sealant depth and otherwise produce optimum glazing sealant
256 performance.

257 2.6 FABRICATION OF GLAZING UNITS

258 A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and
259 face clearances, edge and surface conditions, and bite complying with written instructions of
260 product manufacturer and referenced glazing publications, to comply with system performance
261 requirements.

262 B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites in a manner that produces
263 square edges with slight kerfs at junctions with outdoor and indoor faces.

264 C. Grind smooth and polish exposed glass edges and corners.

265 2.7 MONOLITHIC FLOAT-GLASS UNITS

266 A. Uncoated Clear Float-Glass Units -Glass Type 5: Class 1 (clear) Kind FT (fully tempered) float
267 glass.

268 1. Thickness: [6.0 mm].

269 B. Uncoated Tinted Float-Glass Units –Glass Type 4: Class 2 (tinted) Kind FT (fully tempered)
270 float glass.

271 1. [Available]Products:

272 a. <Insert, in separate subparagraphs, manufacturer's name; product name or
273 designation.>

274 2. Thickness: [6.0 mm].

275 3. Tint Color: Solarbronze by PPG Industries Inc.

276 4. Visible Light Transmittance: 53 percent minimum.

277 5. Solar Heat Gain Coefficient: .063 maximum.

278 6. Outdoor Visible Reflectance: 6 percent maximum.

279 2.8 INSULATING-GLASS UNITS

280 A. Solar-Control Low-E Insulating-Glass Units IG-Glass Type 1:

281 1. [Available]Products:

- 282 2. Overall Unit Thickness and Thickness of Each Lite: [**25 and 6.0 mm**].
- 283 3. Interspace Content: **Air**.
- 284 4. Outdoor Lite: Class **2 (tinted)** float glass.
- 285 a. Tint Color: Solarbronze by PPG Industries Inc.
- 286 b. Kind FT (fully tempered).
- 287 5. Indoor Lite: Class 1 (clear) float glass.
- 288 a. Kind FT (fully tempered).
- 289 6. Low-E Coating: Sputtered on third surface.
- 290 7. Visible Light Transmittance: 42 percent minimum.
- 291 8. Winter Nighttime U-Factor: **.29** maximum.
- 292 9. Summer Daytime U-Factor: **0.27** maximum.
- 293 10. Solar Heat Gain Coefficient: **0.31** maximum.
- 294 11. Outdoor Visible Reflectance: 7 percent maximum.
- 295 B. Solar-Control Low-E Insulating-Glass Units Glass Type 2:
- 296 1. Overall Unit Thickness and Thickness of Each Lite: **25 and 6.0 mm**.
- 297 2. Interspace Content: **Air**.
- 298 3. Outdoor Lite: Class **2 (tinted)** float glass.
- 299 a. Tint Color: Solarbronze
- 300 b. [Annealed][annealed or Kind HS (heat-strengthened) float glass where heat
- 301 strengthening is required to resist thermal stresses induced by differential shading
- 302 of individual glass lites and to comply with system performance requirements]
- 303 4. Indoor Lite: Class 1 (clear) float glass.
- 304 a. [Annealed][annealed or Kind HS (heat-strengthened) float glass where heat
- 305 strengthening is required to resist thermal stresses induced by differential shading
- 306 of individual glass lites and to comply with system performance requirements].
- 307 5. Low-E Coating: Sputtered on third surface.
- 308 6. Visible Light Transmittance: **42** percent minimum.
- 309 7. Winter Nighttime U-Factor: **0.29** maximum.
- 310 8. Summer Daytime U-Factor: **0.27** maximum.
- 311 9. Solar Heat Gain Coefficient: **0.31** maximum.
- 312 10. Outdoor Visible Reflectance: **7** percent maximum.
- 313
- 314 C. Ceramic-Coated Spandrel Insulating-Glass Units IG-<#>:
- 315 1. Basis-of-Design Product: <**Insert manufacturer's name; product name or**
- 316 **designation**> or a comparable product by one of the following:
- 317 a. <**Insert, in separate subparagraphs, manufacturer's name.**>

- 318 2. [Available]Products:
- 319 a. <Insert, in separate subparagraphs, manufacturer's name; product name or
320 designation.>
- 321 3. Construction: Provide units that comply with requirements specified for insulating-glass
322 units designated IG-Glass Type 1 except for indoor lite.
- 323 4. Indoor Lite: Ceramic-coated spandrel glass.
- 324 a. Kind FT (fully tempered).
- 325 b. Color: Harmony bronze by PPG Industries Inc.

326 PART 3 - EXECUTION

327 3.1 EXAMINATION

- 328 A. Examine framing glazing, with Installer present, for compliance with the following:
- 329 1. Manufacturing and installation tolerances, including those for size, squareness, and
330 offsets at corners.
- 331 2. Presence and functioning of weep system.
- 332 3. Minimum required face or edge clearances.
- 333 4. Effective sealing between joints of glass-framing members.
- 334 B. Proceed with installation only after unsatisfactory conditions have been corrected.

335 3.2 PREPARATION

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

338 3.3 GLAZING, GENERAL

- 339 A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and
340 other glazing materials, unless more stringent requirements are indicated, including those in
341 referenced glazing publications.
- 342 B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass,
343 minimum edge and face clearances, and adequate sealant thicknesses, with reasonable
344 tolerances. Adjust as required by Project conditions during installation.
- 345 C. Protect glass edges from damage during handling and installation. Remove damaged glass from
346 Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or
347 other imperfections that, when installed, could weaken glass and impair performance and
348 appearance.

- 349 D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by
350 preconstruction sealant-substrate testing.
- 351 E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing
352 publications, unless otherwise required by glass manufacturer. Set blocks in thin course of
353 compatible sealant suitable for heel bead.
- 354 F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- 355 G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm) as
356 follows:
- 357 1. Locate spacers directly opposite each other on both inside and outside faces of glass.
358 Install correct size and spacing to preserve required face clearances, unless gaskets and
359 glazing tapes are used that have demonstrated ability to maintain required face clearances
360 and to comply with system performance requirements.
- 361 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to
362 sealant width. With glazing tape, use thickness slightly less than final compressed
363 thickness of tape.
- 364 H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways
365 in glazing channel, as recommended in writing by glass manufacturer and according to
366 requirements in referenced glazing publications.
- 367 I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- 368 J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket
369 on opposite side, provide adequate anchorage so gasket cannot walk out when installation is
370 subjected to movement.
- 371 K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by
372 gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with
373 sealant recommended by gasket manufacturer.
- 374 3.4 GASKET GLAZING (DRY)
- 375 A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings
376 exactly, with allowance for stretch during installation.
- 377 B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place
378 with joints miter cut and bonded together at corners.
- 379 C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket
380 by inserting dense compression gaskets formed and installed to lock in place against faces of
381 removable stops. Start gasket applications at corners and work toward centers of openings.
382 Compress gaskets to produce a weathertight seal without developing bending stresses in glass.
383 Seal gasket joints with sealant recommended by gasket manufacturer.
- 384 D. Install gaskets so they protrude past face of glazing stops.

- 385 3.5 CLEANING AND PROTECTION
- 386 A. Protect exterior glass from damage immediately after installation by attaching crossed streamers
387 to framing held away from glass. Do not apply markers to glass surface. Remove
388 nonpermanent labels, and clean surfaces.
- 389 B. Protect glass from contact with contaminating substances resulting from construction
390 operations, including weld splatter. If, despite such protection, contaminating substances do
391 come into contact with glass, remove substances immediately as recommended by glass
392 manufacturer.
- 393 C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at
394 frequent intervals during construction, but not less than once a month, for buildup of dirt, scum,
395 alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- 396 D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from
397 natural causes, accidents, and vandalism, during construction period.
- 398 E. Wash glass on both exposed surfaces in each area of Project not more than four days before date
399 scheduled for inspections that establish date of Substantial Completion. Wash glass as
400 recommended in writing by glass manufacturer.
- 401 END OF SECTION 088000

1 SECTION 092116.23 - GYPSUM BOARD SHAFT WALL ASSEMBLIES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes gypsum board shaft-wall assemblies for the following:
8 1. Stair enclosures.

- 9 B. Related Sections include the following:

10 1.3 SUBMITTALS

- 11 A. Product Data: For each gypsum board shaft-wall assembly indicated.

12 1.4 QUALITY ASSURANCE

- 13 A. Fire-Resistance Ratings: Provide materials and construction identical to those of assemblies
14 with fire-resistance ratings determined according to ASTM E 119 by a testing and inspecting
15 agency.

16 1.5 DELIVERY, STORAGE, AND HANDLING

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

- 19 B. Store materials inside under cover and keep them dry and protected against damage from
20 weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

- 21 C. Stack panels flat on leveled supports off floor or slab to prevent sagging.

22 1.6 PROJECT CONDITIONS

- 23 A. Environmental Limitations: Comply with ASTM C 840 requirements or with gypsum board
24 manufacturer's written recommendations, whichever are more stringent.

- 25 B. Do not install interior products until installation areas are enclosed and conditioned.

- 26 C. Do not install panels that are wet, moisture damaged, or mold damaged.

- 27 1. Indications that panels are wet or moisture damaged include, but are not limited to,
28 discoloration, sagging, and irregular shape.
29 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or
30 splotchy surface contamination and discoloration.

31 PART 2 - PRODUCTS

32 2.1 MANUFACTURERS

33 A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering
34 products that may be incorporated into the Work include, but are not limited to, the following:

35 B. Manufacturers: Subject to compliance with requirements, provide products by one of the
36 following:

- 37 1. American Gypsum Company.
38 2. BPB America Inc.
39 3. G-P Gypsum.
40 4. Lafarge North America Inc.
41 5. National Gypsum Company.
42 6. PABCO Gypsum.
43 7. Temple-Inland Forest Products Corporation.
44 8. USG Corporation.

45 2.2 GYPSUM BOARD SHAFT-WALL ASSEMBLIES, GENERAL

46 A. Provide materials and components complying with requirements of fire-resistance-rated
47 assemblies indicated.

- 48 1. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt
49 joints.
50 2. Provide auxiliary materials complying with gypsum board shaft-wall assembly
51 manufacturer's written recommendations.

52 2.3 PANEL PRODUCTS

53 A. Gypsum Liner Panels: Comply with ASTM C 442/C 442M.

- 54 1. Type X: Manufacturer's proprietary liner panels with moisture-resistant paper faces.
55 a. Core: 1 inch (25.4 mm) thick.
56 b. Long Edges: Double bevel.

57 B. Gypsum Board: As specified in Division 09 Section "Gypsum Board."

- 58 2.4 NON-LOAD-BEARING STEEL FRAMING
- 59 A. Framing Members: Comply with ASTM C 754 for conditions indicated.
- 60 B. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise
61 indicated.
- 62 1. Protective Coating: , hot-dip galvanized, unless otherwise indicated.
- 63 2.5 AUXILIARY MATERIALS
- 64 A. General: Provide auxiliary materials that comply with referenced product standards and
65 manufacturer's written recommendations.
- 66 B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in
67 Division 09 Section " Gypsum Board" that comply with gypsum board shaft-wall assembly
68 manufacturer's written recommendations for application indicated.
- 69 C. Gypsum Board Joint-Treatment Materials: As specified in Division 09 Section "Gypsum
70 Board."
- 71 D. Laminating Adhesive: Adhesive or joint compound recommended by manufacturer for directly
72 adhering gypsum face-layer panels to backing-layer panels in multilayer construction.
- 73 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to
74 40 CFR 59, Subpart D (EPA Method 24).
- 75 E. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- 76 F. Track Fasteners: Power-driven fasteners of size and material required to withstand loading
77 conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track,
78 fasteners, or structural substrates in which anchors are embedded.
- 79 1. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to
80 sustain, without failure, a load equal to 5 times design load, as determined by testing per
81 ASTM E 488 conducted by a qualified testing agency.
- 82 2. Power-Actuated Anchors: Fastener system of type suitable for application indicated,
83 fabricated from corrosion-resistant materials, with capability to sustain, without failure, a
84 load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted
85 by a qualified testing agency.
- 86 G. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing),
87 produced by combining thermosetting resins with mineral fibers manufactured from glass, slag
88 wool, or rock wool.
- 89 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of
90 assembly.

- 91 2.6 GYPSUM BOARD SHAFT-WALL ASSEMBLIES
- 92 A. Fire-Resistance Rating: 2 hours.
- 93 B. Studs: Manufacturer's standard profile for repetitive members, corner and end members, and
94 fire-resistance-rated assembly indicated.
- 95 1. Depth: 4 inches (102 mm).
96 2. Minimum Base-Metal Thickness: As indicated.
- 97 C. Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with
98 manufacturer, but at least 2 inches (51 mm) long and in depth matching studs.
- 99 1. Minimum Base-Metal Thickness: Matching steel studs.
- 100 D. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches (76 mm),
101 in depth matching studs, and not less than 0.0329 inch (0.84 mm) thick.

102 PART 3 - EXECUTION

103 3.1 EXAMINATION

- 104 A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer
105 present, including hollow-metal frames, and structural framing. Examine for compliance with
106 requirements for installation tolerances and other conditions affecting performance.
- 107 B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold
108 damaged.
- 109 C. Proceed with installation only after unsatisfactory conditions have been corrected.

110 3.2 INSTALLATION

- 111 A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire-
112 resistance-rated assemblies indicated, manufacturer's written installation instructions, and the
113 following:
- 114 1. ASTM C 754 for installing steel framing except comply with framing spacing indicated.
115 2. Division 09 Section " Gypsum Board" for applying and finishing panels.
- 116 B. Do not bridge architectural or building expansion joints with shaft-wall assemblies; frame both
117 sides of expansion joints with furring and other support.
- 118 C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as
119 required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment,
120 services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft-
121 wall assembly framing.

- 122 D. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing
123 supplementary steel framing around perimeter of penetration and fire protection behind boxes
124 containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.
- 125 E. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while
126 maintaining continuity of fire-rated construction.
- 127 F. Control Joints: Install control joints according to ASTM C 840 and in specific locations
128 approved by Architect, while maintaining fire-resistance rating of gypsum board shaft-wall
129 assemblies.
- 130 G. Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it
131 abuts other work and at joints and penetrations within each assembly. Install acoustical sealant
132 to withstand dislocation by air-pressure differential between shaft and external spaces; maintain
133 an airtight and smoke-tight seal; and comply with ASTM C 919 requirements or with
134 manufacturer's written instructions, whichever are more stringent.
- 135 H. Installation Tolerance: Install each framing member so fastening surfaces vary not more than
136 **1/8 inch (3mm)** from the plane formed by faces of adjacent framing.

137 3.3 PROTECTION

- 138 A. Protect installed products from damage from weather, condensation, direct sunlight,
139 construction, and other causes during remainder of the construction period.
- 140 B. Remove and replace panels that are wet, moisture damaged, or mold damaged.
- 141 1. Indications that panels are wet or moisture damaged include, but are not limited to,
142 discoloration, sagging, and irregular shape.
- 143 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or
144 splotchy surface contamination and discoloration.

145 END OF SECTION 092116.23

1 SECTION 092216 - NON-STRUCTURAL METAL FRAMING

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes non-load-bearing steel framing members for the following applications:

- 8 1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).

- 9 B. Related Sections include the following:

- 10 1. Division 09 Section "Gypsum Board Shaft Wall Assemblies" for non-load-bearing metal
11 shaft-wall framing, gypsum panels, and other components of shaft-wall assemblies.

12 1.3 SUBMITTALS

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

14 1.4 QUALITY ASSURANCE

- 15 A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-
16 load-bearing steel framing, provide materials and construction identical to those tested in
17 assembly indicated according to ASTM E 119 by an independent testing agency.

- 18 B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical
19 to those tested in assembly indicated according to ASTM E 90 and classified according to
20 ASTM E 413 by an independent testing agency.

21 PART 2 - PRODUCTS

22 2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- 23 A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

- 24 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless
25 otherwise indicated.

- 26 2. Protective Coating: Coating with equivalent corrosion resistance of
27 ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized, unless otherwise indicated.

- 28 2.2 STEEL FRAMING FOR FRAMED ASSEMBLIES
- 29 A. Steel Studs and Runners: ASTM C 645.
- 30 1. Minimum Base-Metal Thickness: As indicated on Drawings
- 31 2. Depth: As indicated on Drawings.
- 32 B. Slip-Type Head Joints: Where indicated, provide one of the following:
- 33 1. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-
- 34) deep flanges in thickness not less than indicated for studs and fastened to studs, and
- 35 outer runner sized to friction fit inside runner.
- 36 2. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes
- 37 applied to interior partition framing resulting from deflection of structure above; in
- 38 thickness not less than indicated for studs and in width to accommodate depth of studs.
- 39 a. Available Products: Subject to compliance with requirements, products that may
- 40 be incorporated into the Work include, but are not limited to, the following:
- 41 b. Products: Subject to compliance with requirements, provide one of the following:
- 42 1) Steel Network Inc. (The); [VertiClip SLD] [VertiTrack VTD] Series.
- 43 2) Superior Metal Trim; Superior Flex Track System (SFT).
- 44 3) <Insert manufacturer's name; product name or designation.>
- 45 C. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with
- 46 movement of the structure while maintaining continuity of fire-resistance-rated assembly
- 47 indicated; in thickness not less than indicated for studs and in width to accommodate depth of
- 48 studs.
- 49 1. Available Products: Subject to compliance with requirements, products that may be
- 50 incorporated into the Work include, but are not limited to, the following:
- 51 2. Products: Subject to compliance with requirements, provide one of the following:
- 52 a. Fire Trak Corp.; Fire Trak [attached to studs with Fire Trak Slip Clip].
- 53 b. Metal-Lite, Inc.; The System.
- 54 c. <Insert manufacturer's name; product name or designation.>
- 55 D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width
- 56 indicated.
- 57 1. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
- 58 E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum
- 59 1/2-inch- (12.7-mm-) wide flanges.
- 60 1. Depth: 1-1/2 inches (38.1 mm).
- 61 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch- (1.73-
- 62 mm-) thick, galvanized steel.
- 63 F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
- 64 1. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm) .

- 65 2. Depth: 7/8 inch (22.2 mm) [1-1/2 inches (38.1 mm)].
- 66 2.3 AUXILIARY MATERIALS
- 67 A. General: Provide auxiliary materials that comply with referenced installation standards.
- 68 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding
69 power, and other properties required to fasten steel members to substrates.
- 70 B. Isolation Strip at Exterior Walls: Provide[**one of**] the following:
- 71 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt),
72 nonperforated.
- 73 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener
74 penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel
75 stud size.
- 76 PART 3 - EXECUTION
- 77 3.1 EXAMINATION
- 78 A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames,
79 cast-in anchors, and structural framing, for compliance with requirements and other conditions
80 affecting performance.
- 81 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- 82 3.2 PREPARATION
- 83 3.3 INSTALLATION, GENERAL
- 84 A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
- 85 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply
86 to framing installation.
- 87 B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim,
88 grab bars, toilet accessories, furnishings, or similar construction.
- 89 C. Install bracing at terminations in assemblies.
- 90 D. Do not bridge building control and expansion joints with non-load-bearing steel framing
91 members. Frame both sides of joints independently.

- 92 3.4 INSTALLING FRAMED ASSEMBLIES
- 93 A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior
94 walls, install isolation strip between studs and exterior wall.
- 95 B. Install studs so flanges within framing system point in same direction.
- 96 1. Space studs as follows:
- 97 a. Single-Layer Application: [16 inches (406 mm)], unless otherwise indicated.
98 b. Tile backing panels: [16 inches (406 mm)] o.c., unless otherwise indicated.
- 99 C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural
100 supports or substrates above suspended ceilings, except where partitions are indicated to
101 terminate at suspended ceilings. Continue framing around ducts penetrating partitions above
102 ceiling.
- 103 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to
104 produce joints at tops of framing systems that prevent axial loading of finished
105 assemblies.
- 106 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames;
107 install runner track section (for cripple studs) at head and secure to jamb studs.
- 108 a. Install two studs at each jamb, unless otherwise indicated.
109 b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch
110 (12.7-mm) clearance from jamb stud to allow for installation of control joint in
111 finished assembly.
112 c. Extend jamb studs through suspended ceilings and attach to underside of overhead
113 structure.
- 114 3. Other Framed Openings: Frame openings other than door openings the same as required
115 for door openings, unless otherwise indicated. Install framing below sills of openings to
116 match framing required above door heads.
- 117 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
118 5. Curved Partitions:
- 119 a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
120 b. Begin and end each arc with a stud, and space intermediate studs equally along
121 arcs. On straight lengths of not less than 2 studs at ends of arcs, place studs 6
122 inches (150 mm) o.c.
- 123 D. Direct Furring:
- 124 1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment,
125 or powder-driven fasteners spaced 24 inches (610 mm) o.c.
- 126 E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than
127 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

128 END OF SECTION 092216

1 SECTION 092900 - GYPSUM BOARD

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Interior gypsum board.
9 2. Exterior gypsum board for ceilings and soffits.
10 3. Tile backing panels.

- 11 B. Related Sections include the following:

- 12 1. Division 09 Section "Non-Structural Metal Framing" for non-structural framing and
13 suspension systems that support gypsum board.
14 2. Division 09 Section "Gypsum Board Shaft-Wall Assemblies" for metal shaft-wall
15 framing, gypsum shaft liners, and other components of shaft-wall assemblies.
16 3. Division 09 painting Sections for primers applied to gypsum board surfaces.

17 1.3 SUBMITTALS

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

19 1.4 STORAGE AND HANDLING

- 20 A. Store materials inside under cover and keep them dry and protected against damage from
21 weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat
22 to prevent sagging.

23 1.5 PROJECT CONDITIONS

- 24 A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board
25 manufacturer's written recommendations, whichever are more stringent.

- 26 B. Do not install interior products until installation areas are enclosed and conditioned.

- 27 C. Do not install panels that are wet, those that are moisture damaged, and those that are mold
28 damaged.

- 29 1. Indications that panels are wet or moisture damaged include, but are not limited to,
30 discoloration, sagging, or irregular shape.
31 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or
32 splotchy surface contamination and discoloration.

33 PART 2 - PRODUCTS

34 2.1 PANELS, GENERAL

- 35 A. Size: Provide in maximum lengths and widths available that will minimize joints in each area
36 and that correspond with support system indicated.

37 2.2 INTERIOR GYPSUM BOARD

- 38 A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to
39 type of gypsum board indicated and whichever is more stringent.

- 40 1. Available Manufacturers: Subject to compliance with requirements, manufacturers
41 offering products that may be incorporated into the Work include, but are not limited to,
42 the following:

- 43 a. American Gypsum Co.
44 b. BPB America Inc.
45 c. G-P Gypsum.
46 d. Lafarge North America Inc.
47 e. National Gypsum Company.
48 f. PABCO Gypsum.
49 g. Temple.
50 h. USG Corporation.

- 51 B. Type X:

- 52 1. Thickness: 5/8 inch (15.9 mm).
53 2. Long Edges: [Tapered] [Tapered and featured (rounded or beveled) for prefilling].

- 54 C. Flexible Type: Manufactured to bend to fit radii and to be more flexible than standard regular-
55 type gypsum board of same thickness.

- 56 1. Thickness: 1/4 inch (6.4 mm).
57 2. Long Edges: Tapered.

- 58 D. Abuse-Resistant Type: Manufactured to produce greater resistance to surface indentation,
59 through-penetration (impact resistance), and abrasion than standard, regular-type and Type X
60 gypsum board.

- 61 1. Core: 5/8 inch (15.9 mm), Type X.
62 2. Long Edges: Tapered.

- 63 E. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
- 64 1. Core: **5/8 inch (15.9 mm)**, Type X.
- 65 2. Long Edges: Tapered.
- 66 2.3 EXTERIOR GYPSUM BOARD FOR CEILINGS AND SOFFITS
- 67 A. Exterior Gypsum Soffit Board: ASTM C 931/C 931M or ASTM C 1396/C 1396M, with
- 68 manufacturer's standard edges.
- 69 1. Available Manufacturers: Subject to compliance with requirements, manufacturers
- 70 offering products that may be incorporated into the Work include, but are not limited to,
- 71 the following:
- 72 a. American Gypsum Co.
- 73 b. BPB America Inc.
- 74 c. G-P Gypsum.
- 75 d. Lafarge North America Inc.
- 76 e. National Gypsum Company.
- 77 f. PABCO Gypsum.
- 78 g. Temple.
- 79 h. USG Corporation.
- 80 2. Core: As indicated, 1/2 inch (12.7 mm), regular type
- 81 B. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M.
- 82 1. Product: Subject to compliance with requirements, provide "Dens-Glass Gold" by G-P
- 83 Gypsum.
- 84 2. Core: As indicated, 1/2 inch (12.7 mm), regular type.
- 85 2.4 TILE BACKING PANELS
- 86 A. Cementitious Backer Units: ANSI A118.9.
- 87 1. Available Products: Subject to compliance with requirements, products that may be
- 88 incorporated into the Work include, but are not limited to, the following:
- 89 2. Products: Subject to compliance with requirements, provide one of the following:
- 90 a. Custom Building Products; Wonderboard.
- 91 b. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
- 92 c. USG Corporation; DUROCK Cement Board.
- 93 d. **<Insert manufacturer's name; product name or designation.>**
- 94 3. Thickness: 1/2 inch (12.7 mm).

- 95 2.5 TRIM ACCESSORIES
- 96 A. Interior Trim: ASTM C 1047.
- 97 1. Material: [Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-
98 faced galvanized steel sheet] [Galvanized or aluminum-coated steel sheet or rolled
99 zinc] [Plastic] [Paper-faced galvanized steel sheet].
- 100 2. Shapes:
- 101 a. Cornerbead.
- 102 b. Bullnose bead.
- 103 c. LC-Bead: J-shaped; exposed long flange receives joint compound.
- 104 d. L-Bead: L-shaped; exposed long flange receives joint compound.
- 105 e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
- 106 f. Expansion (control) joint.
- 107 B. Exterior Trim: ASTM C 1047.
- 108 1. Material: Hot-dip galvanized steel sheet.
- 109 2. Shapes:
- 110 a. Cornerbead.
- 111 b. LC-Bead: J-shaped; exposed long flange receives joint compound.
- 112 c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and
113 removable strip covering slot opening.
- 114 C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated. – See Sheet A6
- 115 2.6 JOINT TREATMENT MATERIALS
- 116 A. General: Comply with ASTM C 475/C 475M.
- 117 B. Joint Tape:
- 118 1. Interior Gypsum Wallboard: Paper.
- 119 2. Exterior Gypsum Soffit Board: Paper.
- 120 3. Tile Backing Panels: As recommended by panel manufacturer.
- 121 C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is
122 compatible with other compounds applied on previous or for successive coats.
- 123 1. Prefilling: At open joints, and damaged surface areas, use setting-type taping compound.
- 124 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and
125 trim flanges, use setting-type taping compound.
- 126 a. Use setting-type compound for installing paper-faced metal trim accessories.
- 127 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
- 128 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

129 5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product
130 designed for application by airless sprayer and to be used instead of skim coat to produce
131 Level 5 finish.

132 D. Joint Compound for Exterior Applications:

- 133 1. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type,
134 sandable topping compound.
135 2. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board
136 manufacturer.

137 E. Joint Compound for Tile Backing Panels:

- 138 1. Cementitious Backer Units: As recommended by backer unit manufacturer.

139 2.7 AUXILIARY MATERIALS

140 A. General: Provide auxiliary materials that comply with referenced installation standards and
141 manufacturer's written recommendations.

142 B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering
143 gypsum panels to continuous substrate.

- 144 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to
145 40 CFR 59, Subpart D (EPA Method 24).

146 C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

- 147 1. Use screws complying with ASTM C 954 for fastening panels to steel members from
148 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
149 2. For fastening cementitious backer units, use screws of type and size recommended by
150 panel manufacturer.

151 D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing)
152 produced by combining thermosetting resins with mineral fibers manufactured from glass, slag
153 wool, or rock wool.

154 E. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."

155 PART 3 - EXECUTION

156 3.1 EXAMINATION

157 A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames
158 and framing, for compliance with requirements and other conditions affecting performance.

159 B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold
160 damaged.

- 161 C. Proceed with installation only after unsatisfactory conditions have been corrected.
- 162 3.2 APPLYING AND FINISHING PANELS, GENERAL
- 163 A. Comply with ASTM C 840.
- 164 B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid
165 abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels
166 not less than one framing member.
- 167 C. Install panels with face side out. Butt panels together for a light contact at edges and ends with
168 not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- 169 D. Locate edge and end joints over supports, except in ceiling applications where intermediate
170 supports or gypsum board back-blocking is provided behind end joints. Do not place tapered
171 edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not
172 make joints other than control joints at corners of framed openings.
- 173 E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- 174 F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings,
175 etc.), except in chases braced internally.
- 176 1. Unless concealed application is indicated or required for sound, fire, air, or smoke
177 ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in
178 area.
- 179 2. Fit gypsum panels around ducts, pipes, and conduits.
- 180 3. Where partitions intersect structural members projecting below underside of floor/roof
181 slabs and decks, cut gypsum panels to fit profile formed by structural members; allow
182 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- 183 G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural
184 abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these
185 locations, and trim edges with edge trim where edges of panels are exposed. Seal joints
186 between edges and abutting structural surfaces with acoustical sealant.
- 187 H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to
188 open (unsupported) edges of stud flanges first.
- 189 3.3 APPLYING INTERIOR GYPSUM BOARD
- 190 A. Install interior gypsum board in the following locations:
- 191 1. Type X: Vertical surfaces, unless otherwise indicated .
- 192 2. Flexible Type: Apply in double layer at curved assemblies.
- 193 3. Abuse-Resistant Type: At wall type 8.
- 194 4. Moisture- and Mold-Resistant Type: As indicated on Drawings.
- 195 B. Single-Layer Application:

- 196 1. On ceilings, apply gypsum panels before wall/partition board application to greatest
197 extent possible and at right angles to framing, unless otherwise indicated.
198 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless
199 otherwise indicated or required by fire-resistance-rated assembly, and minimize end
200 joints.
- 201 a. Stagger abutting end joints not less than one framing member in alternate courses
202 of panels.
203 b. At stairwells and other high walls, install panels horizontally, unless otherwise
204 indicated or required by fire-resistance-rated assembly.
205 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- 206 C. Multilayer Application:
207 1. On partitions/walls, apply gypsum board indicated for base layers and face layers
208 vertically (parallel to framing) with joints of base layers located over stud or furring
209 member and face-layer joints offset at least one stud or furring member with base-layer
210 joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger
211 joints on opposite sides of partitions.
212 2. Fastening Methods: Fasten base layers and face layers separately to supports with
213 screws.
- 214 D. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate
215 (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum
216 board manufacturer's written recommendations and temporarily brace or fasten gypsum panels
217 until fastening adhesive has set.
- 218 E. Curved Surfaces:
219 1. Install panels horizontally (perpendicular to supports) and unbroken, to extent possible,
220 across curved surface plus 12-inch- (300-mm-) long straight sections at ends of curves
221 and tangent to them.
222 2. For double-layer construction, fasten base layer to studs with screws 16 inches (400 mm)
223 o.c. Center gypsum board face layer over joints in base layer, and fasten to studs with
224 screws spaced 12 inches (300 mm) o.c.
- 225 3.4 APPLYING EXTERIOR GYPSUM PANELS FOR CEILINGS AND SOFFITS
- 226 A. Apply panels perpendicular to supports, with end joints staggered and located over supports.
227 1. Install with 1/4-inch (6.4-mm) open space where panels abut other construction or
228 structural penetrations.
229 2. Fasten with corrosion-resistant screws.
- 230 3.5 APPLYING TILE BACKING PANELS
- 231 A. Cementitious Backer Units: ANSI A108.11, at [showers, tubs, and where indicated]
232 [locations indicated to receive tile].

- 233 3.6 INSTALLING TRIM ACCESSORIES
- 234 A. General: For trim with back flanges intended for fasteners, attach to framing with same
235 fasteners used for panels. Otherwise, attach trim according to manufacturer's written
236 instructions.
- 237 B. Control Joints: Install control joints according to ASTM C 840 and in specific locations
238 approved by Architect for visual effect.
- 239 C. Interior Trim: Install in the following locations:
- 240 1. Cornerbead: Use at outside corners, unless otherwise indicated.
241 2. LC-Bead: Use [**at exposed panel edges**] <Insert requirements>.
242 3. L-Bead: Use [**where indicated**] <Insert requirements>.
243 4. U-Bead: Use [**at exposed panel edges**] [**where indicated**] <Insert requirements>.
- 244 D. Exterior Trim: Install in the following locations:
- 245 1. Cornerbead: Use at outside corners.
246 2. LC-Bead: Use [**at exposed panel edges**] <Insert requirements>.
- 247 E. Aluminum Trim: Install in locations [**indicated on Drawings**] <Insert requirements>.
- 248 3.7 FINISHING GYPSUM BOARD
- 249 A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations,
250 fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for
251 decoration. Promptly remove residual joint compound from adjacent surfaces.
- 252 B. Prefill open joints, and damaged surface areas.
- 253 C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended
254 for tape.
- 255 D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM
256 C 840:
- 257 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
258 2. Level 2: Panels that are substrate for tile .
- 259 3. Level 5: All locations exposed to view.
- 260 a. Primer and its application to surfaces are specified in other Division 09 Sections.
- 261 E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions.
- 262 F. Cementitious Backer Units: Finish according to manufacturer's written instructions.

- 263 3.8 PROTECTION
- 264 A. Protect installed products from damage from weather, condensation, direct sunlight,
265 construction, and other causes during remainder of the construction period.
- 266 B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
- 267 1. Indications that panels are wet or moisture damaged include, but are not limited to,
268 discoloration, sagging, or irregular shape.
- 269 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or
270 splotchy surface contamination and discoloration.
- 271 END OF SECTION 092900

1 SECTION 093000 - TILING

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:
8 1. Tile
9 2. Crack-suppression membrane for thin-set tile installations.
10 3. Metal edge strips installed as part of tile installations.

11 1.3 DEFINITIONS

- 12 A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint
13 width indicated.
14 B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).
15 C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

16 1.4 PERFORMANCE REQUIREMENTS

- 17 A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the
18 following values as determined by testing identical products per ASTM C 1028:
19 1. Level Surfaces: Minimum 0.6.

20 1.5 SUBMITTALS

- 21 A. Product Data: For each type of product indicated.
22 B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and
23 locations of expansion, contraction, control, and isolation joints in tile substrates and finished
24 tile surfaces.
25 C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of
26 accessories involving color selection.
27 D. Samples for Verification:

- 28 1. Full-size units of each type and composition of tile and for each color and finish required.
29 2. Full-size units of each type of trim and accessory for each color and finish required.
30 3. Stone thresholds in 6-inch (150-mm) lengths.
- 31 E. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile
32 manufacturer and Installer.
- 33 F. Product Certificates: For each type of product, signed by product manufacturer.
- 34 G. Qualification Data: For Installer.
- 35 H. Material Test Reports: For each tile-setting and -grouting product.
- 36 1.6 QUALITY ASSURANCE
- 37 A. Source Limitations for Tile: Obtain all tile of same color or finish from one source or producer.
- 38 1. Obtain tile from same production run and of consistent quality in appearance and
39 physical properties for each contiguous area.
- 40 B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality
41 for each mortar, adhesive, and grout component from a single manufacturer and each aggregate
42 from one source or producer.
- 43 C. Source Limitations for Other Products: Obtain each of the following products specified in this
44 Section through one source from a single manufacturer for each product:
- 45 1. Stone thresholds.
- 46 1.7 DELIVERY, STORAGE, AND HANDLING
- 47 A. Deliver and store packaged materials in original containers with seals unbroken and labels intact
48 until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- 49 B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- 50 C. Store aggregates where grading and other required characteristics can be maintained and
51 contamination avoided.
- 52 D. Store [liquid latexes] [and] [emulsion adhesives] in unopened containers and protected from
53 freezing.
- 54 E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces
55 from contacting backs or edges of other units. If coating does contact bonding surfaces of tile,
56 remove coating from bonding surfaces before setting tile.

- 57 1.8 PROJECT CONDITIONS
- 58 A. Environmental Limitations: Do not install tile until construction in spaces is complete and
59 ambient temperature and humidity conditions are maintained at the levels indicated in
60 referenced standards and manufacturer's written instructions.
- 61 1.9 EXTRA MATERIALS
- 62 A. Furnish extra materials described below that match products installed and that are packaged
63 with protective covering for storage and identified with labels describing contents.
- 64 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount
65 installed, for each type, composition, color, pattern, and size indicated.
- 66 PART 2 - PRODUCTS
- 67 2.1 MANUFACTURERS
- 68 A. In other Part 2 articles where titles below introduce lists, the following requirements apply for
69 product selection:
- 70 1. Basis-of-Design Product: The design for each tile type is based on the product named.
71 Subject to compliance with requirements, provide either the named product or a
72 comparable product by one of the other manufacturers specified.
- 73 2.2 PRODUCTS, GENERAL
- 74 A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for
75 Ceramic Tile," for types, compositions, and other characteristics indicated.
- 76 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
77 2. For facial dimensions of tile, comply with requirements shown on drawings.
- 78 B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI
79 standards referenced in "Setting and Grouting Materials" Article.
- 80 C. Factory Blending: For tile exhibiting color variations within ranges selected during Sample
81 submittals, blend tile in factory and package so tile units taken from one package show same
82 range in colors as those taken from other packages and match approved Samples.
- 83 2.3 TILE PRODUCTS
- 84 1. Allow \$8.00 / square foot for tile purchase (including State Sales Tax). Tile will be
85 selected by the Architect.

86 2.4 WATERPROOFING] [AND] [CRACK-SUPPRESSION MEMBRANES] FOR THIN-SET
87 TILE INSTALLATIONS

88 A. General: Manufacturer's standard product that complies with ANSI A118.10[, **selected from**
89 **the following**].

90 B. Liquid applied elastomeric waterproofing material that cures to form a monoi-thic membrane.
91 a. Basis of Design: Custom Building Products – Red Gard or approved equal.

92 2.5 SETTING AND GROUTING MATERIALS

93 A. [Available]Manufacturers:

- 94 1. Atlas Minerals & Chemicals, Inc.
- 95 2. Boiardi Products Corporation.
- 96 3. Bonsal, W. R., Company.
- 97 4. Bostik.
- 98 5. C-Cure.
- 99 6. Custom Building Products.
- 100 7. DAP, Inc.
- 101 8. Jamo Inc.
- 102 9. LATICRETE International Inc.
- 103 10. MAPEI Corporation.
- 104 11. Southern Grouts & Mortars, Inc.
- 105 12. Summitville Tiles, Inc.
- 106 13. TEC Specialty Products Inc.

107 B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

108 1. Prepackaged dry-mortar mix combined with [**acrylic resin**] [**or**] [**styrene-butadiene-**
109 **rubber**] liquid-latex additive.

110 a. For wall applications, provide nonsagging mortar that complies with Paragraph F-
111 4.6.1 in addition to the other requirements in ANSI A118.4.

112 2. Prepackaged dry-mortar mix combined with [**acrylic resin**] [**or**] [**styrene-butadiene-**
113 **rubber**] liquid-latex additive.

114 C. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

115 1. Polymer Type: Either ethylene vinyl acetate, in dry, redispersible form, prepackaged
116 with other dry ingredients, or acrylic resin or styrene-butadiene rubber in liquid-latex
117 form for addition to prepackaged dry-grout mix.

118 a. Unsanded grout mixture for joints **1/8 inch (3.2 mm)** and narrower.

119 b. Sanded grout mixture for joints **1/8 inch (3.2 mm)** and wider.

120 2.6 MISCELLANEOUS MATERIALS

121 A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based
122 formulation provided or approved by manufacturer of tile-setting materials for installations
123 indicated.

124 B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or
125 combination of metal and PVC or neoprene base, designed specifically for flooring applications,
126 nickel silver or exposed-edge material.

127 C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and
128 grout surfaces, specifically approved for materials and installations indicated by tile and grout
129 manufacturers.

130 2.7 MIXING MORTARS AND GROUT

131 A. Mix mortars and grouts to comply with referenced standards and mortar and grout
132 manufacturers' written instructions.

133 B. Add materials, water, and additives in accurate proportions.

134 C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and
135 other procedures to produce mortars and grouts of uniform quality with optimum performance
136 characteristics for installations indicated.

137 PART 3 - EXECUTION

138 3.1 EXAMINATION

139 A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for
140 compliance with requirements for installation tolerances and other conditions affecting
141 performance of installed tile.

142 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and
143 curing compounds; and within flatness tolerances required by referenced ANSI A108
144 Series of tile installation standards for installations indicated.

145 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical
146 units of work, and similar items located in or behind tile has been completed before
147 installing tile.

148 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if
149 not coordinated, adjust joint locations in consultation with Architect.

150 B. Proceed with installation only after unsatisfactory conditions have been corrected.

151 3.2 PREPARATION

152 A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil,
153 or silicone, that are incompatible with tile-setting materials.

154 B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with
155 flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.

- 156 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound
157 according to tile-setting material manufacturer's written instructions. Use product
158 specifically recommended by tile-setting material manufacturer.
159 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- 160 C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals,
161 verify that tile has been factory blended and packaged so tile units taken from one package
162 show same range of colors as those taken from other packages and match approved Samples. If
163 not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- 164 3.3 INSTALLATION, GENERAL
- 165 A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for
166 Installation of Ceramic Tile" that apply to types of setting and grouting materials and to
167 methods indicated in ceramic tile installation schedules.
- 168 B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with
169 TCA installation methods indicated in ceramic tile installation schedules.
- 170 C. Extend tile work into recesses and under or behind equipment and fixtures to form complete
171 covering without interruptions, unless otherwise indicated. Terminate work neatly at
172 obstructions, edges, and corners without disrupting pattern or joint alignments.
- 173 D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring
174 visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for
175 straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other
176 penetrations so plates, collars, or covers overlap tile.
- 177 E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when
178 adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile
179 fields in both directions in each space or on each wall area. Adjust to minimize tile cutting.
180 Comply with patterns indicated in drawings. Provide uniform joint widths, unless otherwise
181 indicated.
- 182 F. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control,
183 contraction, and isolation joints, where indicated during installation of setting materials, mortar
184 beds, and tile. Do not saw-cut joints after installing tiles.
- 185 1. Locate joints in tile surfaces directly above joints in concrete substrates.
186 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section
187 "Joint Sealants."
- 188 G. Grout tile to comply with requirements of the following tile installation standards:
- 189 1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and
190 latex-portland cement grouts), comply with ANSI A108.10.

191 3.4 [WATERPROOFING] [AND] [CRACK-SUPPRESSION MEMBRANE]
192 INSTALLATION

193 A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written
194 instructions to produce waterproof membrane of uniform thickness bonded securely to
195 substrate.

196 B. Install crack-suppression membrane to comply with manufacturer's written instructions to
197 produce membrane of uniform thickness bonded securely to substrate.

198 C. Do not install tile over waterproofing until waterproofing has cured .

199 3.5 FLOOR TILE INSTALLATION

200 A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule,
201 including those referencing TCA installation methods and ANSI A108 Series of tile installation
202 standards.

203 1. For installations indicated below, follow procedures in ANSI A108 Series tile installation
204 standards for providing 95 percent mortar coverage.

205 a. Tile floors composed of tiles 8 by 8 inches (200 by 200 mm) or larger.

206 B. Joint Widths: Install tile on floors with the following joint widths:

207 1. Paver Tile: 1/4 inch (6.35 mm).

208 C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets
209 carpet, wood, or other flooring that finishes flush with top of tile.

210 3.6 WALL TILE INSTALLATION

211 A. Install types of tile designated for wall installations to comply with requirements in the Wall
212 Tile Installation Schedule, including those referencing TCA installation methods and ANSI
213 setting-bed standards.

214 B. Comply with patterns indicated on drawings.

215 C. Joint Widths: Install tile on walls with the following joint widths: ¼”

216 3.7 CLEANING AND PROTECTING

217 A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are
218 free of foreign matter.

219 1. Remove latex-portland cement grout residue from tile as soon as possible.

220 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written
221 instructions, but no sooner than 10 days after installation. Use only cleaners
222 recommended by tile and grout manufacturers and only after determining that cleaners
223 are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect

224 metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean
225 water before and after cleaning.

226 B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed
227 tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during
228 construction period to prevent staining, damage, and wear.

229 C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is
230 completed.

231 D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

232 3.8 FLOOR TILE INSTALLATION SCHEDULE

233 A. Tile Installation :Interior floor installation on crack-suppression membrane over concrete; thin-
234 set mortar; TCA F122 and ANSI A108.5.

- 235 1. Tile Type: To be selected.
236 2. Thin-Set Mortar: Latex-portland cement mortar.
237 3. Grout: Polymer-modified sanded grout.

238 3.9 WALL TILE INSTALLATION SCHEDULE

239 A. Tile Installation : Interior wall installation over cementitious backer units; thin-set mortar;
240 TCA W244 and ANSI A108.5.

- 241 1. Tile Type: To be selected.
242 2. Thin-Set Mortar: Latex- portland cement mortar.
243 3. Grout: Polymer-modified sanded grout.

244 END OF SECTION 093000

1 SECTION 095113 - ACOUSTICAL PANEL CEILINGS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes acoustical panels and exposed suspension systems for ceilings.
8 B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling
9 attachment devices to be cast in concrete at ceilings.

10 1.3 DEFINITIONS

- 11 A. AC: Articulation Class.
12 B. CAC: Ceiling Attenuation Class.
13 C. LR: Light Reflectance coefficient.
14 D. NRC: Noise Reduction Coefficient.

15 1.4 SUBMITTALS

- 16 A. Product Data: For each type of product indicated.
17 B. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items
18 are shown and coordinated with each other, based on input from installers of the items involved:
19 1. Ceiling suspension system members.
20 2. Method of attaching hangers to building structure.
21 3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers,
22 access panels, and special moldings.
23 4. Minimum Drawing Scale: [1/4 inch = 1 foot (1:48)] [1/8 inch = 1 foot (1:96)] [1:50]
24 [1:100] <Insert scale>.
25 C. Samples for Verification: For each component indicated and for each exposed finish required,
26 prepared on Samples of size indicated below.
27 1. Acoustical Panel: Set of 6-inch- (150-mm-) square Samples of each type, color, pattern,
28 and texture.

61 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before
62 beginning acoustical panel ceiling installation.

63 1.8 COORDINATION

64 A. Coordinate layout and installation of acoustical panels and suspension system with other
65 construction that penetrates ceilings or is supported by them, including light fixtures, HVAC
66 equipment, fire-suppression system, and partition assemblies.

67 1.9 EXTRA MATERIALS

68 A. Furnish extra materials described below that match products installed and that are packaged
69 with protective covering for storage and identified with labels describing contents.

- 70 1. Acoustical Ceiling Panels: Full-size panels equal to 5 percent of quantity installed.
71 2. Suspension System Components: Quantity of each exposed component equal to **2.0**
72 percent of quantity installed.

73 PART 2 - PRODUCTS

74 2.1 ACOUSTICAL PANELS, GENERAL

75 A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated
76 that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical
77 ratings, and light reflectances, unless otherwise indicated.

78 B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each
79 product type.

80 C. Broad Spectrum Antimicrobial Fungicide: Provide acoustical panels treated with
81 manufacturer's standard antimicrobial formulation that inhibits mold and mildew, and showing
82 no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated
83 according to ASTM D 3274 or ASTM G 21.

84 2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

85 A. Products: Subject to compliance with requirements, provide one of the following:

86 B. Basis-of-Design Product: Subject to compliance with requirements, provide USG Interiors Inc.,
87 Frost Clima Plus SLB # 438 or a comparable product by one of the following:

- 88 1. Armstrong World Industries, Inc.
89 2. BPB USA
90 3. Chicago Metallic Corporation
91 4. Ecophon CertainTeed, Inc.
92 5. Tectum Inc.

- 93 6. USG Interiors, Inc.
- 94
- 95 C. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as
96 follows:
- 97 1. Type and Form: Type III, mineral base with painted finish; Form 4, cast or molded.
98
- 99 2. Pattern: E (lightly textured)
- 100 D. Color: White.
- 101 E. LR: Not less than 0.80.
- 102 F. NRC: Not less than 0.70.
- 103 G. CAC: Not less than 35.
- 104 H. Edge/Joint Detail: Reveal sized to fit flange of exposed suspension system members.
- 105 I. Thickness: 7/8 inch (22 mm).
- 106 J. Modular Size: 24 by 24 inches (610 by 610 mm).
- 107 K. Antimicrobial Treatment: Broad spectrum fungicide based.
- 108 2.3 METAL SUSPENSION SYSTEMS, GENERAL
- 109 A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal
110 suspension systems of types, structural classifications, and finishes indicated that comply with
111 applicable requirements in ASTM C 635.
- 112 B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for
113 Architectural and Metal Products" for recommendations for applying and designating finishes.
114 Provide manufacturer's standard factory-applied finish for type of system indicated.
- 115 C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1,
116 "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- 117 a. Type: Postinstalled expansion anchors.
- 118 b. Corrosion Protection: Carbon-steel components zinc plated to comply with
119 ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition.
- 120 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application
121 indicated, fabricated from corrosion-resistant materials, with clips or other accessory
122 devices for attaching hangers of type indicated, and with capability to sustain, without
123 failure, a load equal to [10] <Insert safety factor> times that imposed by ceiling
124 construction, as determined by testing per ASTM E 1190, conducted by a qualified
125 testing and inspecting agency.

- 126 D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
- 127 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft
128 temper.
- 129 2. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635,
130 Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than
131 **[0.106-inch- (2.69-mm-)] [0.135-inch- (3.5-mm-)] <Insert dimension>** diameter wire.
- 132 E. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to
133 accommodate seismic forces.
- 134 F. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic
135 forces.
- 136 G. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical
137 panels in-place.

138 2.4 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

- 139 A. Available Products: Subject to compliance with requirements, products that may be
140 incorporated into the Work include, but are not limited to, the following:
- 141 B. Products: Subject to compliance with requirements, provide one of the following:
- 142 C. Basis-of-Design Product: Subject to compliance with requirements, provide USG Interiors Inc.,
143 Donn DX Heavy Duty or a comparable product by one of the following:
- 144 1. Armstrong World Industries, Inc.; <Insert product name or designation>.
- 145 2. BPB USA; <Insert product name or designation>.
- 146 3. Chicago Metallic Corporation; <Insert product name or designation>.
- 147 4. Ecophon CertainTeed, Inc.; <Insert product name or designation>.
- 148 5. USG Interiors, Inc.; <Insert product name or designation>.

- 149 D. Wide-Face, Capped, Double-Web, Hot-Dip Galvanized, G60 (Z180), Steel Suspension System:
150 Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized according to
151 ASTM A 653/A 653M, G60 (Z180) coating designation, with prefinished, cold-rolled, 15/16-
152 inch- (24-mm-) wide, steel caps on flanges.
- 153 1. Structural Classification: Heavy-duty system.
- 154 2. Face Design: Flat, flush.
- 155 3. Face Finish: Painted white.

156 2.5 METAL EDGE MOLDINGS AND TRIM

- 157 A. Products: Subject to compliance with requirements, provide one of the following:
- 158 B. Basis-of-Design Product: Subject to compliance with requirements, provide USG Interiors Inc.,
159 Donn DX Heavy Duty or a comparable product by one of the following:

- 160 1. Armstrong World Industries, Inc.
161 2. BPB USA.
162 3. Chicago Metallic Corporation.
163 4. Fry Reglet Corporation.
164 5. Gordon, Inc.
165 6. USG Interiors, Inc.
- 166 C. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not
167 indicated, manufacturer's standard moldings for edges and penetrations that comply with
168 seismic design requirements; formed from sheet metal of same material, finish, and color as that
169 used for exposed flanges of suspension system runners.
- 170 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and
171 suspension systems indicated and that match width and configuration of exposed runners,
172 unless otherwise indicated.
173 2. For lay-in panels with reveal edge details, provide **[stepped edge molding that forms
174 reveal of same depth and width as that formed between edge of panel and flange at
175 exposed suspension member]** <Insert description>.
176 3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter
177 required to fit penetration exactly.
- 178 2.6 ACOUSTICAL SEALANT
- 179 A. Acoustical Sealant is specified in Section 079200 "Joint Sealants" ES-2
- 180 PART 3 - EXECUTION
- 181 3.1 EXAMINATION
- 182 A. Examine substrates, areas, and conditions, including structural framing to which acoustical
183 panel ceilings attach or abut, with Installer present, for compliance with requirements specified
184 in this and other Sections that affect ceiling installation and anchorage and with requirements
185 for installation tolerances and other conditions affecting performance of acoustical panel
186 ceilings.
- 187 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- 188 3.2 PREPARATION
- 189 A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at
190 opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply
191 with layout shown on reflected ceiling plans.

- 192 3.3 INSTALLATION
- 193 A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic design
194 requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems
195 Handbook."
- 196 B. Suspend ceiling hangers from building's structural members and as follows:
- 197 1. Install hangers plumb and free from contact with insulation or other objects within ceiling
198 plenum that are not part of supporting structure or of ceiling suspension system.
- 199 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces
200 by bracing, countersplaying, or other equally effective means.
- 201 3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces
202 by bracing, countersplaying, or other equally effective means.
- 203 4. Where width of ducts and other construction within ceiling plenum produces hanger
204 spacings that interfere with location of hangers at spacings required to support standard
205 suspension system members, install supplemental suspension members and hangers in
206 form of trapezes or equivalent devices.
- 207 5. Secure wire hangers to ceiling suspension members and to supports above with a
208 minimum of three tight turns. Connect hangers directly either to structures or to inserts,
209 eye screws, or other devices that are secure and appropriate for substrate and that will not
210 deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
- 211 6. Attach hangers to structural members.
- 212 7. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported
213 directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches
214 (200 mm) from ends of each member.
- 215 8. Size supplemental suspension members and hangers to support ceiling loads within
216 performance limits established by referenced standards and publications.
- 217 C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and
218 where necessary to conceal edges of acoustical panels.
- 219 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of
220 moldings before they are installed.
- 221 2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c.
222 and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system
223 to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and
224 connect securely.
- 225 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- 226 D. Install suspension system runners so they are square and securely interlocked with one another.
227 Remove and replace dented, bent, or kinked members.
- 228 E. Install acoustical panels with undamaged edges and fit accurately into suspension system
229 runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat,
230 precise fit.
- 231 1. For reveal-edged panels on suspension system runners, install panels with bottom of
232 reveal in firm contact with top surface of runner flanges.
- 233 2. Paint cut edges of panel remaining exposed after installation; match color of exposed
234 panel surfaces using coating recommended in writing for this purpose by acoustical panel
235 manufacturer.

- 236 3.4 CLEANING
- 237 A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and
238 suspension system members. Comply with manufacturer's written instructions for cleaning and
239 touchup of minor finish damage. Remove and replace ceiling components that cannot be
240 successfully cleaned and repaired to permanently eliminate evidence of damage.
- 241 END OF SECTION 095113

1 SECTION 096513 - RESILIENT BASE AND ACCESSORIES

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. Section Includes:

- 8 1. Resilient base.

9 1.3 SUBMITTALS

- 10 A. Product Data: For each type of product indicated.
11 B. Samples for Initial Selection: For each type of product indicated.
12 C. Product Schedule: For resilient products.

13 1.4 QUALITY ASSURANCE

- 14 A. Fire-Test-Response Characteristics: As determined by testing identical products according to
15 ASTM E 648 or NFPA 253 by a qualified testing agency.
16 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

17 1.5 DELIVERY, STORAGE, AND HANDLING

- 18 A. Store resilient products and installation materials in dry spaces protected from the weather, with
19 ambient temperatures maintained within range recommended by manufacturer, but not less than
20 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

21 1.6 PROJECT CONDITIONS

- 22 A. Maintain ambient temperatures within range recommended by manufacturer, but not less than
23 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive resilient products
24 during the following time periods:
25 1. 48 hours before installation.
26 2. During installation.

- 27 3. 48 hours after installation.
- 28 B. Until Substantial Completion, maintain ambient temperatures within range recommended by
29 manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- 30 C. Install resilient products after other finishing operations, including painting, have been
31 completed.

32 1.7 EXTRA MATERIALS

- 33 A. Furnish extra materials that match products installed and that are packaged with protective
34 covering for storage and identified with labels describing contents.
- 35 1. Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or
36 fraction thereof, of each type, color, pattern, and size of resilient product installed.

37 PART 2 - PRODUCTS

38 2.1 RESILIENT BASE

- 39 A. Resilient Base:
- 40 1. Manufacturers: Subject to compliance with requirements, provide products by one of the
41 following:
- 42 a. Allstate Rubber Corp.; Stoler Industries.
- 43 b. Armstrong World Industries, Inc.
- 44 c. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
- 45 d. Endura Rubber Flooring; Division of Burke Industries, Inc.
- 46 e. Estrie Products International; American Biltrite (Canada) Ltd.
- 47 f. Flexco, Inc.
- 48 g. Johnsonite.
- 49 h. Mondo Rubber International, Inc.
- 50 i. Musson, R. C. Rubber Co.
- 51 j. Nora Rubber Flooring; Freudenberg Building Systems, Inc.
- 52 k. PRF USA, Inc.
- 53 l. Roppe Corporation, USA.
- 54 m. VPI, LLC; Floor Products Division.
- 55 B. Resilient Base Standard: ASTM F 1861.
- 56 1. Material Requirement: Type TS (rubber, vulcanized thermoset).
- 57 2. Manufacturing Method: Group I (solid, homogeneous).
- 58 3. Style: Cove (base with toe).
- 59 C. Minimum Thickness: 0.125 inch (3.2 mm).
- 60 D. Height: 6 inches (152 mm).

- 61 E. Lengths: Coils in manufacturer's standard length.
- 62 F. Outside Corners: Preformed .
- 63 G. Inside Corners: Job formed or preformed.
- 64 H. Finish: As selected by Architect from manufacturer's full range.
- 65 I. Colors and Patterns: As selected by Architect from full range of industry colors.

66 2.2 INSTALLATION MATERIALS

- 67 A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or
68 blended hydraulic-cement-based formulation provided or approved by manufacturer for
69 applications indicated.
- 70 B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and
71 substrate conditions indicated.

72 PART 3 - EXECUTION

73 3.1 EXAMINATION

- 74 A. Examine substrates, with Installer present, for compliance with requirements for maximum
75 moisture content and other conditions affecting performance of the Work.
- 76 B. Verify that finishes of substrates comply with tolerances and other requirements specified in
77 other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign
78 deposits that might interfere with adhesion of resilient products.
- 79 C. Proceed with installation only after unsatisfactory conditions have been corrected.

80 3.2 PREPARATION

- 81 A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of
82 resilient products.
- 83 B. Concrete Substrates for Resilient Stair Treads and Accessories: Prepare according to
84 ASTM F 710.
 - 85 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 86 2. Remove substrate coatings and other substances that are incompatible with adhesives and
87 that contain soap, wax, oil, or silicone, using mechanical methods recommended by
88 manufacturer. Do not use solvents.
 - 89 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
 - 90 4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed
91 with installation only after substrates pass testing.

- 92 a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation
93 only after substrates have maximum moisture-vapor-emission rate of 3 lb of
94 water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
95 b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with
96 installation only after substrates have maximum 75 percent relative humidity level
97 measurement.

98 C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching
99 compound and remove bumps and ridges to produce a uniform and smooth substrate.

100 D. Do not install resilient products until they are same temperature as the space where they are to
101 be installed.

102 1. Move resilient products and installation materials into spaces where they will be installed
103 at least 48 hours in advance of installation.

104 E. Sweep and vacuum clean substrates to be covered by resilient products immediately before
105 installation.

106 3.3 RESILIENT BASE INSTALLATION

107 A. Comply with manufacturer's written instructions for installing resilient base.

108 B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other
109 permanent fixtures in rooms and areas where base is required.

110 C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of
111 adjacent pieces aligned.

112 D. Tightly adhere resilient base to substrate throughout length of each piece, with base in
113 continuous contact with horizontal and vertical substrates.

114 E. Do not stretch resilient base during installation.

115 F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient
116 base with manufacturer's recommended adhesive filler material.

117 G. Preformed Corners: Install preformed outside corners before installing straight pieces.

118 H. Job-Formed Corners:

119 1. Inside Corners: Use straight pieces of maximum lengths possible.

120 3.4 CLEANING AND PROTECTION

121 A. Comply with manufacturer's written instructions for cleaning and protection of resilient
122 products.

123 B. Perform the following operations immediately after completing resilient product installation:

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- 124 1. Remove adhesive and other blemishes from exposed surfaces.
125 2. Sweep and vacuum surfaces thoroughly.
126 3. Damp-mop surfaces to remove marks and soil.
- 127 C. Protect resilient products from mars, marks, indentations, and other damage from construction
128 operations and placement of equipment and fixtures during remainder of construction period.
- 129 D. Cover resilient products until Substantial Completion.
- 130 END OF SECTION 096513

1 SECTION 099123 - INTERIOR PAINTING

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes surface preparation and the application of paint systems on the following
8 interior substrates:
- 9 1. Concrete masonry units (CMU).
 - 10 2. Steel.
 - 11 3. Gypsum board.
 - 12 4. Cotton or canvas insulation covering.

13 1.3 SUBMITTALS

- 14 A. Product Data: For each type of product indicated.
- 15 B. Samples for Initial Selection: For each type of topcoat product indicated.
- 16 C. Product List: For each product indicated, include the following:
- 17 1. Cross-reference to paint system and locations of application areas. Use same
18 designations indicated on Drawings and in schedules.
 - 19 2. Printout of current "MPI Approved Products List" for each product category specified in
20 Part 2, with the proposed product highlighted.

21 1.4 QUALITY ASSURANCE

- 22 A. MPI Standards:
- 23 1. Products: Complying with MPI standards indicated and listed in "MPI Approved
24 Products List."
 - 25 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural
26 Painting Specification Manual" for products and paint systems indicated.

27 1.5 DELIVERY, STORAGE, AND HANDLING

- 28 A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient
29 temperatures continuously maintained at not less than 45 deg F (7 deg C).

- 30 1. Maintain containers in clean condition, free of foreign materials and residue.
31 2. Remove rags and waste from storage areas daily.
- 32 1.6 PROJECT CONDITIONS
- 33 A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are
34 between 50 and 95 deg F (10 and 35 deg C).
- 35 B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5
36 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- 37 1.7 EXTRA MATERIALS
- 38 A. Furnish extra materials described below that are from same production run (batch mix) as
39 materials applied and that are packaged for storage and identified with labels describing
40 contents.
- 41 1. Quantity: Furnish an additional [5] <Insert number> percent, but not less than 1 gal.
42 (3.8 L) of each material and color applied.
- 43 PART 2 - PRODUCTS
- 44 2.1 MANUFACTURERS
- 45 A. Basis of design manufacturer: Subject to compliance with requirements provide the products
46 indicated by Sherwin –Williams Company (The) or a comparable product by one of the
47 following:
48 1. ICI Paints.
49 2. PPG Architectural Finishes, Inc.
50 3. Rose Talbert
- 51 2.2 PAINT, GENERAL
- 52 A. Material Compatibility:
- 53 1. Provide materials for use within each paint system that are compatible with one another
54 and substrates indicated, under conditions of service and application as demonstrated by
55 manufacturer, based on testing and field experience.
56 2. For each coat in a paint system, provide products recommended in writing by
57 manufacturers of topcoat for use in paint system and on substrate indicated.
- 58 B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that
59 comply with the following limits for VOC content, exclusive of colorants added to a tint base,
60 when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following
61 chemical restrictions; these requirements do not apply to primers or finishes that are applied in a
62 fabrication or finishing shop:

- 63 1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
64 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
65 3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by
66 weight of total aromatic compounds (hydrocarbon compounds containing one or more
67 benzene rings).
68 4. Restricted Components: Paints and coatings shall not contain any of the following:
- 69 a. Acrolein.
70 b. Acrylonitrile.
71 c. Antimony.
72 d. Benzene.
73 e. Butyl benzyl phthalate.
74 f. Cadmium.
75 g. Di (2-ethylhexyl) phthalate.
76 h. Di-n-butyl phthalate.
77 i. Di-n-octyl phthalate.
78 j. 1,2-dichlorobenzene.
79 k. Diethyl phthalate.
80 l. Dimethyl phthalate.
81 m. Ethylbenzene.
82 n. Formaldehyde.
83 o. Hexavalent chromium.
84 p. Isophorone.
85 q. Lead.
86 r. Mercury.
87 s. Methyl ethyl ketone.
88 t. Methyl isobutyl ketone.
89 u. Methylene chloride.
90 v. Naphthalene.
91 w. Toluene (methylbenzene).
92 x. 1,1,1-trichloroethane.
93 y. Vinyl chloride.
- 94 C. Colors: As selected by Architect from manufacturer's full range .

95 PART 3 - EXECUTION

96 3.1 EXAMINATION

- 97 A. Examine substrates and conditions, with Applicator present, for compliance with requirements
98 for maximum moisture content and other conditions affecting performance of work.
- 99 B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter
100 as follows:
101 1. Masonry (Clay and CMU): 12 percent.
102 2. Gypsum Board: 12 percent.
- 103 C. Verify suitability of substrates, including surface conditions and compatibility with existing
104 finishes and primers.

105 D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces
106 are dry.

107 1. Beginning coating application constitutes Contractor's acceptance of substrates and
108 conditions.

109 3.2 PREPARATION

110 A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural
111 Painting Specification Manual" applicable to substrates indicated.

112 B. Remove plates, machined surfaces, and similar items already in place that are not to be painted.
113 If removal is impractical or impossible because of size or weight of item, provide surface-
114 applied protection before surface preparation and painting.

115 1. After completing painting operations, use workers skilled in the trades involved to
116 reinstall items that were removed. Remove surface-applied protection if any.

117 2. Do not paint over labels of independent testing agencies or equipment name,
118 identification, performance rating, or nomenclature plates.

119 C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and
120 incompatible paints and encapsulants.

121 1. Remove incompatible primers and reprime substrate with compatible primers as required
122 to produce paint systems indicated.

123 D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if
124 moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's
125 written instructions.

126 E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in
127 writing by paint manufacturer.

128 F. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and
129 sanded smooth.

130 G. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material
131 that might impair bond of paints to substrates.

132 3.3 APPLICATION

133 A. Apply paints according to manufacturer's written instructions.

134 1. Use applicators and techniques suited for paint and substrate indicated.

135 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.
136 Before final installation, paint surfaces behind permanently fixed equipment or furniture
137 with prime coat only.

138 3. Paint front and backsides of access panels, removable or hinged covers, and similar
139 hinged items to match exposed surfaces.

- 140 B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of
141 same material are to be applied. Tint undercoats to match color of topcoat, but provide
142 sufficient difference in shade of undercoats to distinguish each separate coat.
- 143 C. If undercoats or other conditions show through topcoat, apply additional coats until cured film
144 has a uniform paint finish, color, and appearance.
- 145 D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks,
146 roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color
147 breaks.
- 148 E. Painting Mechanical and Electrical Work: Paint items installed by this contract that are exposed
149 in equipment rooms and occupied spaces including, but not limited to, the following:
- 150 1. Mechanical Work:
- 151 a. Uninsulated metal piping.
152 b. Uninsulated plastic piping.
153 c. Pipe hangers and supports.
154 d. Tanks that do not have factory-applied final finishes.
155 e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets
156 and outlets.
157 f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering
158 or other paintable jacket material.
159 g. Mechanical equipment that is indicated to have a factory-primed finish for field
160 painting.
- 161 2. Electrical Work:
- 162 a. Switchgear.
163 b. Panelboards.
164 c. Electrical equipment that is indicated to have a factory-primed finish for field
165 painting.

166 3.4 CLEANING AND PROTECTION

- 167 A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from
168 Project site.
- 169 B. After completing paint application, clean spattered surfaces. Remove spattered paints by
170 washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- 171 C. Protect work of other trades against damage from paint application. Correct damage to work of
172 other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and
173 leave in an undamaged condition.
- 174 D. At completion of construction activities of other trades, touch up and restore damaged or
175 defaced painted surfaces.

- 176 3.5 INTERIOR PAINTING SCHEDULE
- 177 A. CMU Substrates:
- 178 1. Latex System: MPI INT 4.2A.
- 179 a. Prime Coat: Loxon Block Surfacer A24W200
- 180 b. Intermediate Coat: ProMar 200 Interior Latex
- 181 c. Topcoat: Interior latex Flat B30W 200 Series
- 182 B. Steel Substrates:
- 183 1. Quick-Drying Water Based System: Alkyd.
- 184 a. Prime Coat: Pro-industrial ProCryl Universal Metal Primer B66-310 Series.
- 185 b. Intermediate Coat: Sher Cryl HPA (gloss) B66-300 Series.
- 186 c. Topcoat: Sher Cryl HPA (gloss) B66-300 Series.
- 187 C. Gypsum Board Substrates:
- 188 1. Latex System: MPI INT 9.2A.
- 189 a. Prime Coat: ProMar 200 Letex Primer B28W 8200 Series.
- 190 b. Intermediate Coat: Pro Mar 200 Interior Latex
- 191 c. Topcoat: Interior Eggshell B20W200 Series.
- 192 D. Cotton or Canvas Insulation-Covering Substrates: Including pipe and duct coverings.
- 193 1. Latex System: MPI INT 10.1A.
- 194 a. Prime Coat: Interior latex primer/sealer – Perprite Primer/Sealer B51W20.
- 195 b. Intermediate Coat: ProMar 200 Latex Flat B30 W 200 Series.
- 196 c. Topcoat: ProMar 200 Latex Flat B 30 W 200 Series.
- 197 END OF SECTION 099123

1 SECTION 122113 - HORIZONTAL LOUVER BLINDS

2 PART 1 - GENERAL

3 1.1 RELATED DOCUMENTS

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

6 1.2 SUMMARY

- 7 A. This Section includes the following:

- 8 1. Horizontal louver blinds with aluminum slats.

9 1.3 SUBMITTALS

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

- 11 B. Shop Drawings: Show fabrication and installation details for horizontal louver blinds.

- 12 C. Samples for Initial Selection: For each type and color of horizontal louver blind indicated.

- 13 1. Include similar Samples of accessories involving color selection.

- 14 D. Samples for Verification: For each type and color of horizontal louver blind indicated.

- 15 1. Slat: Not less than 12 inches (300 mm) long.

- 16 2. Tapes: Full width, not less than 6 inches (150 mm) long.

- 17 3. Horizontal Louver Blind: Full-size unit, not less than 16 inches (400 mm) wide by 24
18 inches (600 mm) long.

- 19 4. Valance: Full-size unit, not less than 12 inches (300 mm) wide.

- 20 5. Cornice: Full-size unit, not less than 12 inches (300 mm) wide.

- 21 E. Window Treatment Schedule: For horizontal louver blinds. Use same designations indicated
22 on Drawings.

- 23 F. Product Certificates: For each type of horizontal louver blind, signed by product manufacturer.

- 24 G. Maintenance Data: For horizontal louver blinds to include in maintenance manuals.

25 1.4 QUALITY ASSURANCE

- 26 A. Source Limitations: Obtain horizontal louver blinds through one source from a single
27 manufacturer.

28 B. Product Standard: Provide horizontal louver blinds complying with WCSC A 100.1.

29 1.5 DELIVERY, STORAGE, AND HANDLING

30 A. Deliver horizontal louver blinds in factory packages, marked with manufacturer and product
31 name, and location of installation using same designations indicated on Drawings and in a
32 window treatment schedule.

33 1.6 PROJECT CONDITIONS

34 A. Environmental Limitations: Do not install horizontal louver blinds until construction and wet
35 and dirty finish work in spaces, including painting, is complete and dry and ambient
36 temperature and humidity conditions are maintained at the levels indicated for Project when
37 occupied for its intended use.

38 B. Field Measurements: Where horizontal louver blinds are indicated to fit to other construction,
39 verify dimensions of other construction by field measurements before fabrication and indicate
40 measurements on Shop Drawings. Allow clearances for operable glazed units' operation
41 hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate
42 fabrication schedule with construction progress to avoid delaying the Work.

43 PART 2 - PRODUCTS

44 2.1 HORIZONTAL LOUVER BLINDS, ALUMINUM SLATS

45 A. Available Products: Subject to compliance with requirements, products that may be
46 incorporated into the Work include, but are not limited to, the following:

47 B. Products: Subject to compliance with requirements, provide one of the following:

48 C. Basis-of-Design Product: Subject to compliance with requirements, provide Hunter Douglas –
49 Lightlines Aluminum Blinds or a comparable product by one of the following:

50 1. Levolor, a Newell Rubbermaid Company; .

51 2. Springs Window Fashions Division, Inc.; .

52 D. Slats: Aluminum; alloy and temper recommended by producer for type of use and finish
53 indicated; with crowned profile and radiused corners.

54 1. Width: 1 inch (25 mm).

55 a. Spacing: Not less than every, 0.71 inch (18 mm) .

56 2. Thickness: 8-gauge

57 3. Finish: One color.

- 58 a. Ionized Coating: Antistatic, dust-repellent, baked polyester finish.
- 59 E. Headrail: Formed steel or extruded aluminum; long edges returned or rolled; fully enclosing
60 operating mechanisms on three sides and end plugs and the following:
- 61 1. Capacity: One blind per headrail .
62 2. Integrated Headrail/Valance: .
63 3. Light-blocking lower back lip.
- 64 F. Bottom Rail: Formed-steel or extruded-aluminum tube, with plastic or metal capped ends with
65 enclosed ladders and tapes to prevent contact with sill.
- 66 G. Ladders: Evenly spaced to prevent long-term slat sag.
- 67 1. For Blinds with Nominal Slat Width 1 Inch (25 mm) or Less: Braided string.
- 68 H. Lift Cords: Ultra Glide.
- 69 I. Tilt Control: Enclosed worm-gear mechanism, and linkage rod, and the following:
- 70 1. Tilt Operation: Manual with clear plastic wand .
71 2. Length of Tilt Control: Length required to make operation convenient from floor level .
72 3. Tilt: Full.
- 73 J. Lift Operation: Manual, cord lock; locks pull cord to stop blind at any position in ascending or
74 descending travel.
- 75 K. Valance: Manufacturer's standard.
- 76 1. Finish Color Characteristics: Match color, texture, pattern, and gloss of slats
- 77 L. Mounting: End mounting between aluminum storefront jambs, permitting easy removal and
78 replacement without damaging blind or adjacent surfaces and finishes; with spacers and shims
79 required for blind placement and alignment indicated.
- 80 1. Provide intermediate support brackets if end support spacing exceeds spacing
81 recommended by manufacturer for weight and size of blind.
- 82 M. Hold-Down Brackets and Hooks or Pins: Manufacturer's standard.
- 83 N. Colors, Textures, Patterns, and Gloss: As selected by Architect from manufacturer's full range.
- 84 2.2 HORIZONTAL LOUVER BLIND FABRICATION
- 85 A. Concealed Components: Noncorrodible or corrosion-resistant-coated materials.
- 86 1. Lift-and-Tilt Mechanisms: With permanently lubricated moving parts.

- 87 B. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows,
88 measured at 74 deg F (23 deg C):
- 89 1. Blind Units Installed between (inside) Jambs: Width equal to 1/4 inch (6 mm) per side or
90 1/2 inch (13 mm) total, plus or minus 1/8 inch (3.1 mm), less than jamb-to-jamb
91 dimension of opening in which each blind is installed. Length equal to 1/4 inch (6 mm),
92 plus or minus 1/8 inch (3.1 mm), less than head-to-sill dimension of opening in which
93 each blind is installed.
- 94 2. Blind Units Installed outside Jambs: Width and length as indicated, with terminations
95 between blinds of end-to-end installations at centerlines of mullion or other defined
96 vertical separations between openings.
- 97 C. Installation Brackets: Designed for easy removal and reinstallation of blind, for supporting
98 headrail, valance, and operating hardware, and for hardware position and blind mounting
99 method indicated.
- 100 D. Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal
101 noncorrosive to blind hardware and adjoining construction; type designed for securing to
102 supporting substrate; and supporting blinds and accessories under conditions of normal use.
- 103 E. Color-Coated Finish:
- 104 1. Metal: For components exposed to view, apply manufacturer's standard baked finish
105 complying with manufacturer's written instructions for surface preparation including
106 pretreatment, application, baking, and minimum dry film thickness.
- 107 F. Component Color: Provide rails, cords, ladders, and exposed-to-view metal[, **wood**,] and
108 plastic matching or coordinating with slat color, unless otherwise indicated.

109 PART 3 - EXECUTION

110 3.1 EXAMINATION

- 111 A. Examine substrates, areas, and conditions, with Installer present, for compliance with
112 requirements for installation tolerances, operational clearances, and other conditions affecting
113 performance.
- 114 1. Proceed with installation only after unsatisfactory conditions have been corrected.

115 3.2 INSTALLATION

- 116 A. Install horizontal louver blinds level and plumb and aligned with adjacent units according to
117 manufacturer's written instructions, and located so exterior slat edges in any position are not
118 closer than **1 inch (25 mm)** to interior face of glass. Install intermediate support as required to
119 prevent deflection in headrail. Allow clearances between adjacent blinds and for operating
120 glazed opening's operation hardware if any.

- 121 B. Jamb Mounted: Install headrail flush with face of opening jamb and head.
- 122 3.3 ADJUSTING
- 123 A. Adjust horizontal louver blinds to operate smoothly, easily, safely, and free of binding or
124 malfunction throughout entire operational range.
- 125 3.4 CLEANING AND PROTECTION
- 126 A. Clean horizontal louver blind surfaces after installation, according to manufacturer's written
127 instructions.
- 128 B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and
129 Installer, that ensure that horizontal louver blinds are without damage or deterioration at time of
130 Substantial Completion.
- 131 C. Replace damaged horizontal louver blinds that cannot be repaired, in a manner approved by
132 Architect, before time of Substantial Completion.
- 133 END OF SECTION 122113