

1206 FLORA STREET MILL

Electrical Site Package  
Facilities Relocation Building  
Systems Renovation Project

**USC # H27-Z400-2**  
GMC # ACOL180003

**PROJECT MANUAL**

September 8, 2020



**BUILDING COMMUNITIES**

1219 Wayne Street  
Columbia, SC 29201  
803.766.1235

## **TABLE OF CONTENTS**

**PROJECT NAME:** Electrical Site Package – Facilities Relocation – Building Systems Renovation Project

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**PROJECT NUMBER:** H27-Z400-2

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<b><u>SECTION</u></b>	<b><u>NUMBER OF PAGES</u></b>
Table of Contents .....	2
SE-310, Invitation for Design-Bid-Build Construction Services.....	1
AIA Document A701 Instructions to Bidders South Carolina Division of Procurement Services, Office of State Engineer Version.....	13
Bid Bond (AIA A310 or reference) .....	1
SE-330, Lump Sum Bid Form .....	6
AIA Document A101 Standard Form of Agreement between Owner and Contractor South Carolina Division of Procurement Services, Office of State Engineer Version.....	9
AIA Document A201 General Conditions of the Contract for Construction South Carolina Division of Procurement Services, Office of State Engineer Version.....	49
USC Supplemental General Conditions for Construction Projects .....	9
Contractor's One Year Guarantee .....	1
SE-355, Performance Bond .....	2
SE-357, Labor & Material Payment Bond.....	2
SE-380, Change Order to Construction Contract.....	1

**TECHNICAL SPECIFICATIONS****DIVISION 1 - GENERAL REQUIREMENTS**

00 31 26 Existing Hazardous Material Information .....	1
00 31 26.1 Asbestos Containing Material Investigation Report.....	98
00 31 26.2 Lead-Based Paint Investigation Report .....	38
01 10 00 Summary .....	3
01 26 00 Contract Modification Procedures .....	2
01 29 00 Payment Procedures.....	4
01 31 00 Project Management and Coordination .....	8
01 32 00 Construction Progress Documentation .....	5
01 33 00 Submittal Procedures .....	8
01 40 00 Quality Requirements .....	8
01 41 50 Special Inspections and Testing.....	10
01 42 00 References.....	8
01 50 00 Temporary Facilities and Controls.....	4
01 60 00 Product Requirements.....	5
01 73 00 Execution .....	8
01 73 10 Cutting and Patching.....	3
01 73 20 Selective Demolition.....	5
01 77 00 Closeout Procedures.....	4
01 78 20 Operation and Maintenance Data.....	6
01 78 39 Project Record Documents .....	3

**DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

07 84 13 Penetration Firestopping .....	8
---	---

**DIVISION 21 – ELECTRICAL**

26 05 00 Common Work Results for Electrical.....	6
26 05 19 Low-Voltage Electrical Power Conductors and Cables.....	5
26 05 48 Vibration and Seismic Controls for Electrical Systems.....	3
26 05 29 Hangers and Supports for Electrical Systems.....	3
26 05 33 Raceway and Boxes for Electrical Systems.....	8
26 05 48 Vibration and Seismic Controls for Electrical Systems.....	3
26 05 53 Identification for Electrical Systems.....	3
26 05 74 Short Circuit, Overcurrent Protection, Arc Flash Hazard Analysis.....	7
26 05 83 Equipment Wiring Connections.....	3
26 22 00 Low-Voltage Transformers.....	5
26 24 13 Switchboards.....	7
26 24 16 Panelboards .....	7
26 28 13 Fuses .....	2
26 28 19 Enclosed Switches .....	4
26 28 26 3-Way Manual Transfer Switches .....	5
26 43 00 Surge Protective Devices .....	4

END OF TABLE OF CONTENTS

**SE-310****INVITATION FOR DESIGN-BID-BUILD CONSTRUCTION SERVICES**

**AGENCY/OWNER:** University of South Carolina

**PROJECT NAME:** Electrical Site Package – Facilities Relocation – Building Systems Renovation Project

**PROJECT NUMBER:** H27-Z400-2 **CONSTRUCTION COST RANGE:** \$ 250,000 to \$ 350,000 N/A

**PROJECT LOCATION:** 1206 Flora Street, Columbia, SC 29208

**DESCRIPTION OF PROJECT/SERVICES:** Installation of a new Electrical Service to the 1206 Flora Mill along with associated electrical panels and wiring at the existing building. Small and minority business participation is encouraged.

**BID/SUBMITTAL DUE DATE:** 10/15/2020 **TIME:** 10:00 A.M. **NUMBER OF COPIES:** 1

**PROJECT DELIVERY METHOD:** Design-Bid-Build

**AGENCY PROJECT COORDINATOR:** Kristen Moss

**EMAIL:** kbmoss@mailbox.sc.edu **TELEPHONE:** 803-777-5253

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

**BID SECURITY IS REQUIRED IN AN AMOUNT NOT LESS THAN 5% OF THE BASE BID.**

**PERFORMANCE BOND REQUIRED?** Yes  No  **PAYMENT BOND REQUIRED?** Yes  No

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

Bidders must obtain Bidding Documents/Plans from the above listed source(s) to be listed as an official plan holder. Bidders that rely on copies obtained from any other source do so at their own risk. All written communications with official plan holders & bidders will be via email or website posting.

Agency **WILL NOT** accept Bids send via email.

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

**A/E NAME:** Goodwyn, Mills & Cawood (GMC)

**A/E CONTACT:** Marc Warren, AIA

**EMAIL:** marc.warren@gmcnetwork.com **TELEPHONE:** 803-766-1235

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

**PRE-BID DATE:** 9/29/2020 **TIME:** 11:00 A.M.

**PRE-BID PLACE:** Conference Call (800) 753-1965 / Access Code 777 7162

SITE VISITS - 09/29/20 after pre-bid by appointment - Call Ann Derrick at (803)777-5811 to schedule a site visit appointment. Visitors will be limited to 1 per appointment. Use of attendee provided face masks and plastic gloves is mandatory. Six-foot social distance rules apply fully. Site Visit Meeting location is 1206 Flora Street, Columbia, SC 29208 at the building rear loading dock.

**BID OPENING PLACE:** Bid openings will be limited to teleconference only: Telephone 800-753-1965/Access code 7777162

**BID DELIVERY ADDRESSES:****HAND-DELIVERY:**

**Attn:** University of South Carolina – Facilities Procurement  
Kristen Moss, Bid Enclsoed - Project #H27-Z400-2  
1600 Hampton Street, Suite 606, Columbia, SC 29208

**MAIL SERVICE:**

**Attn:** University of South Carolina – Facilities Procurement  
Kristen Moss, Bid Enclsoed - Project #H27-Z400-2  
1600 Hampton Street, Suite 606, Columbia, SC 29208

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

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



South Carolina Division of Procurement  
Services, Office of State Engineer Version of  
 AIA<sup>®</sup> Document A701<sup>™</sup> – 2018

*Instructions to Bidders*

This version of AIA Document A701<sup>™</sup>–2018 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A701–2018 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A701–2018 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A701<sup>™</sup>– 2018, Instructions to Bidders — SCOSE Version,” or “AIA Document A701<sup>™</sup>–2018 — SCOSE Version.”

# South Carolina Division of Procurement Services, Office of State Engineer Version of AIA<sup>®</sup> Document A701<sup>™</sup> – 2018

## *Instructions to Bidders*

for the following Project:

*(Name, State Project Number, location, and detailed description)*

### THE OWNER:

*(Name, legal status, address, and other information)*

The Owner is a Governmental Body of the State of South Carolina as defined by S.C. Code Ann. § 11-35-310.

### THE ARCHITECT:

*(Name, legal status, address, and other information)*

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

## TABLE OF ARTICLES

- 1 DEFINITIONS
- 2 BIDDER'S REPRESENTATIONS
- 3 BIDDING DOCUMENTS
- 4 BIDDING PROCEDURES
- 5 CONSIDERATION OF BIDS
- 6 POST-BID INFORMATION
- 7 PERFORMANCE BOND AND PAYMENT BOND
- 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

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## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 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 Document A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. 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 Document A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, has correlated the Bidder's observations with the requirements of the Proposed Contract Documents, 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 S.C. Code Ann. Reg. 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;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

§ 2.2 Certification of Independent Price Determination

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

§ 2.2.2 By submitting a 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:
  - .1 those prices;
  - .2 the intention to submit a Bid; or
  - .3 the methods or factors used to calculate the prices offered.
- .2 The prices in this Bid have not been and will not be knowingly disclosed by the Bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
- .3 No attempt has been made or will be made by the Bidder to induce any other concern to submit or not to submit a Bid for the purpose of restricting competition.

§ 2.2.3 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 Section 2.2.2 of this certification; or
- .2 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 Section 2.2.2 of this certification [As used in this subdivision, the term "principals" means the person(s) in the Bidder's organization responsible for determining the prices offered in this Bid];
- .3 As an authorized agent, does certify that the principals referenced in Section 2.2.3.2 of this certification have not participated, and will not participate, in any action contrary to Section 2.2.2 of this certification; and
- .4 As an agent, has not personally participated, and will not participate, in any action contrary to Section 2.2.2 of this certification.

§ 2.2.4 If the Bidder deletes or modifies Section 2.2.2.2 of this certification, the Bidder must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

§ 2.2.5 Drug Free Workplace Certification

By submitting a Bid, the Bidder certifies that, if awarded a contract, Bidder will comply with all applicable provisions of The Drug-free Workplace Act, S.C. Code Ann. 44-107-10, et seq.

§ 2.2.6 Certification Regarding Debarment and Other Responsibility Matters

§ 2.2.6.1 By submitting a Bid, Bidder certifies, to the best of its knowledge and belief, that:

- .1 Bidder and/or any of its Principals-
  - .1 Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;
  - .2 Have not, within a three-year period preceding this Bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
  - .3 Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in Section 2.2.6.1.1.2 of this provision.
- .2 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.
- .3 "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).

§ 2.2.6.2 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.

§ 2.2.6.3 If Bidder is unable to certify the representations stated in Section 2.2.6.1, Bidder must submit a written explanation regarding its inability to make the certification. The certification will be considered in connection with a review of the Bidder's responsibility. Failure of the Bidder to furnish additional information as requested by the Procurement Officer may render the Bidder non-responsible.

§ 2.2.6.4 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 Section 2.2.6.1 of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

§ 2.2.6.5 The certification in Section 2.2.6.1 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.

### § 2.2.7 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 SC Code of Laws, as amended (Ethics Act). The following statutes require special attention: S.C. Code Ann. §8-13-700, regarding use of official position for financial gain; S.C. Code Ann. §8-13-705, regarding gifts to influence action of public official; S.C. Code Ann. §8-13-720, regarding offering money for advice or assistance of public official; S.C. Code Ann. §8-13-755 and §8-13-760, regarding restrictions on employment by former public official; S.C. Code Ann. §8-13-775, prohibiting public official with economic interests from acting on contracts; S.C. Code Ann. §8-13-790, regarding recovery of kickbacks; S.C. Code Ann. §8-13-1150, regarding statements to be filed by consultants; and S.C. Code Ann. §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 the 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, the contractor shall, if required by law to file such a statement, provide the statement required by S.C. Code Ann. §8-13-1150 to the Procurement Officer at the same time the law requires the statement to be filed.

### § 2.2.8 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.

§ 2.2.8.1 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.

§ 2.2.8.2 Unless otherwise approved in writing by the Procurement Officer, Bidder agrees not to give anything to the Owner, any affiliated organizations, or the employees, agents or officials of either, prior to award.

§ 2.2.8.3 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. SC Regulation 19-445.2165(C) broadly defines the term donor.

### § 2.2.9 Open Trade Representation

By submitting a Bid, the Bidder represents that Bidder is not currently engaged in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in S.C. Code Ann. §11-35-5300.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

§ 3.1.2 Any required deposit shall be refunded to all plan holders who return the paper Bidding Documents in good condition within ten (10) days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

### § 3.1.3 Reserved

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.1.6 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.

## § 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2. 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 Architect's attention prior to Bid Opening.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids.

§ 3.2.3 Modifications, corrections, changes, and interpretations of the Bidding Documents shall be made by Addendum. Modifications, corrections, changes, and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.2.4 As provided in S.C. Code Ann. Reg. 19-445.2042(B), nothing stated at the Pre-bid conference shall change the Bidding Documents unless a change is made by Addendum.

## § 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Where "brand name or equal" is used in the Bidding Documents, the listing description is not intended to limit or restrict competition.

### § 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten (10) days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.2.4 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 (10) days prior to the date for receipt of Bids established in the invitation to bid.

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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. 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.

§ 3.3.3 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.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

#### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued at least five (5) business days before the day of the Bid Opening, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids. A business day runs from midnight to midnight and excludes weekends and state and federal holidays.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

§ 3.4.5 When the date for receipt of Bids is to be postponed and there is insufficient time to issue an Addendum prior to the original Bid Date, the Owner will notify prospective Bidders by telephone or other appropriate means with immediate follow up with an 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) business 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 in the county in which Bids are to be received at the time a pre-bid or pre-proposal conference is scheduled, an Addendum will be issued to reschedule the conference. Bidders shall visit <https://www.scemd.org/closings/> for information concerning closings.

### ARTICLE 4 BIDDING PROCEDURES

#### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the Bid Form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in numbers.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid. 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.

§ 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".

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§ 4.1.6 Pursuant to S.C. Code Ann. § 11-35-3020(b)(i), as amended, Section 7 of the Bid Form sets forth a list of proposed subcontractors for which the Bidder is required to identify those subcontractors the Bidder will use to perform the work listed. 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.

§ 4.1.7 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 as required by law at the time of bidding.

§ 4.1.8 Each copy of the Bid shall state the legal name and legal status of the Bidder. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract.

§ 4.1.9 A Bidder shall incur all costs associated with the preparation of its Bid.

## § 4.2 Bid Security

§ 4.2.1 If required by the invitation to bid, 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.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, 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.

§ 4.2.3 If a surety bond is required as bid security, 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 an acceptable 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.

§ 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; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected.

§ 4.2.5 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.

## § 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

§ 4.3.2 All paper copies of the Bid, the bid security, 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 to bid. 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 sealed envelope shall be labelled "SEALED 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 to bid prior to the time of the Bid Opening.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.



§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.3.6 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.

#### § 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

### ARTICLE 5 CONSIDERATION OF BIDS

#### § 5.1 Opening of Bids

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

§ 5.1.1 At Bid Opening, the Owner will announce the date and location of the posting of the Notice of Intend to Award. If the Owner determines to award the Project, the Owner will, after posting a Notice of Intend to Award, send a copy of the Notice to all Bidders.

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

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

#### § 5.2 Rejection of Bids

§ 5.2.1 The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 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 Owner's 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.

### § 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed available funds. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## ARTICLE 6 POST-BID INFORMATION

### § 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.

### § 6.2 Reserved

### § 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

### § 6.4 Posting of Intent To Award

The Notice of Intent to Award will be posted at the following location:

**Room or Area of Posting:**

**Building Where Posted:**

**Address of Building:**

**WEB site address (if applicable):**

**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

### § 6.5 Protest of Solicitation or Award

§ 6.5.1 If you are aggrieved in connection with the solicitation or award of a contract, you may be entitled to protest, but only as provided in S.C. Code Ann. § 11-35-4210. To protest a solicitation, you must submit a protest within fifteen (15) days of the date the applicable solicitation document is issued. To protest an award, you must (i) submit notice of your intent to protest within seven (7) business days of the date the award notice is posted, and (ii) submit your actual protest within fifteen (15) days of the date the award notice is posted. Days are calculated as provided in Section 11-35-310(13). Both protests and notices of intent to protest must be in writing and must be received by the State Engineer within the time provided. The grounds of the protest and the relief requested must be set forth with enough particularity to give notice of the issues to be decided.

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

- .1 by email to [protest-ose@mmo.sc.gov](mailto:protest-ose@mmo.sc.gov),
- .2 by facsimile at 803-737-0639, or
- .3 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.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the state of South Carolina.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of 100% of the Contract Sum.

§ 7.2 Time of Delivery of Contract, Certificates of Insurance, and Form of Bonds

§ 7.2.1 Following expiration of the protest period, the Owner will forward the Contract for Construction to the Bidder for signature. The Bidder shall return the fully executed Contract for Construction to the Owner within seven (7) days. The Bidder shall deliver the required bonds and certificate of insurance to the Owner not later than three (3) 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.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on the Performance Bond and Payment Bond forms included in the Bid Documents.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, SCOSE Version.
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, SCOSE Version.
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction, SCOSE Version.
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit
- .5 Drawings

Number	Title	Date
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- .6 Specifications

Section	Title	Date	Pages
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.7 Addenda:

Number	Date	Pages
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.8 Other Exhibits:

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:

The Sustainability Plan:

Supplementary and other Conditions of the Contract:

.9 Other documents listed below:

*(List here any additional documents that are intended to form part of the Proposed Contract Documents.)*

## ARTICLE 9 Miscellaneous

### § 9.1 Nonresident Taxpayer Registration Affidavit Income Tax Withholding Important Tax Notice - Nonresidents Only

§ 9.1.1 Withholding Requirements for Payments to Nonresidents: SC Code of Laws §12-8-550 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.

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

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

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

### § 9.2 Submitting Confidential Information

§ 9.2.1 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that the 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 SC Code of Laws §11-35-410.

§ 9.2.2 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the words "TRADE SECRET" every page, or portion thereof, that the Bidder contends contains a trade secret as that term is defined by SC Code of Laws §39-8-20.

§ 9.2.3 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the word "PROTECTED" every page, or portion thereof, that the Bidder contends is protected by SC Code of Laws §11-35-1810.

§ 9.2.4 All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark your entire Bid as confidential, trade secret, or protected! If your Bid, or any part thereof, is improperly marked as confidential or trade secret or protected, the State may, in its sole discretion, determine it nonresponsive. If only portions of a page are subject to some protection, do not mark the entire page.

§ 9.2.5 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.

§ 9.2.6 In determining whether to release documents, the State will detrimentally rely on the Bidders' marking of documents, as required by these bidding instructions, as being either "Confidential" or "Trade Secret" or "PROTECTED".

§ 9.2.7 By submitting a response, the 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".

### § 9.3 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.

### § 9.4 Builder's Risk Insurance

Bidders are directed to Exhibit A of the AIA Document A101, 2017 SCOSE Version, which, unless provided otherwise in the Bid Documents, requires the contractor to provide builder's risk insurance on the project.

### § 9.5 Tax Credit For Subcontracting With Minority Firms

§ 9.5.1 Pursuant to S.C. Code Ann. §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.

§ 9.5.2 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.

§ 9.5.3 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: S.C. Code Ann. §11-35-5010 – Definition for Minority Subcontractor & S.C. Code Ann. §11-35-5230 (B) – Regulations for Negotiating with State Minority Firms.

§ 9.6 Other Special Conditions Of The Work

ELECTRICAL SITE PACKAGE  
FACILITIES RELOCATION  
BUILDING SYSTEMS RENOVATION PROJECT

PROJECT # H27-Z400-2  
GMC PROJECT # ACOL180003  
09/08/2020

BID BOND – AIA310

**Note: AIA Document**

**Contractor to Provide Bid Bond In the form of AIA A310**

END OF SECTION 01 10 00

# SE-330 LUMP SUM BID FORM

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

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

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

**FOR: PROJECT NAME:** Electrical Site Package – Facilities Relocation – Building Systems Renovation Project

**PROJECT NUMBER:** H27-Z400-2

## **OFFER**

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

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

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

(Bidder check one)

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

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

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

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

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

§ 6.1 **BASE BID WORK** (as indicated in the Bidding Documents and generally described as follows): Installation of a new Electrical Service to the 1206 Flora Mill along with associated electrical panels and wiring at the existing building. Small and minority business participation is encouraged.

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

(Bidder to insert Base Bid Amount on line above)



**SE-330  
LUMP SUM BID FORM**

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

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

<b>(A) SUBCONTRACTOR LICENSE CLASSIFICATION or SUBCLASSIFICATION NAME</b> <i>(Completed by Owner)</i>	<b>(B) LICENSE CLASSIFICATION or SUBCLASSIFICATION ABBREVIATION</b> <i>(Completed by Owner)</i>	<b>(C) SUBCONTRACTOR and/or PRIME CONTRACTOR</b> <i>(Required - must be completed by Bidder)</i>	<b>(D) SUBCONTRACTOR'S and/or PRIME CONTRACTOR'S SC LICENSE NUMBER</b> <i>(Requested, but not Required)</i>
<b>BASE BID</b>			
<b>ALTERNATE #1</b>			
<b>ALTERNATE #2</b>			
<b>ALTERNATE #3</b>			

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

## SE-330 LUMP SUM BID FORM

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

Pursuant to instructions in the Invitation for Construction Services, if any, Bidder will provide to Owner upon the Owner's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code § 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 amount of \$ 150.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

### § 10. AGREEMENTS

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

### § 11. ELECTRONIC BID BOND

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

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

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

**SE-330  
LUMP SUM BID FORM**

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

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

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

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

**By signing this Bid, the person signing reaffirms all representation and certification made by both the person signing and the Bidder, including without limitation, those appearing in Article 2 of the SCOSE Version of the AIA Document A701, Instructions to Bidders, is expressly incorporated by reference.**

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

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

\_\_\_\_\_

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

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

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

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

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

**South Carolina Division of Procurement  
Services, Office of State Engineer Version of  
 AIA<sup>®</sup> Document A101<sup>®</sup> – 2017**

***Standard Form of Agreement Between Owner and  
Contractor where the basis of payment is a Stipulated Sum***

This version of AIA Document A101<sup>®</sup>–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A101–2017 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A101–2017 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A101<sup>®</sup>–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum — SCOSE Version,” or “AIA Document A101<sup>®</sup>–2017 — SCOSE Version.”

# South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A101® – 2017

## *Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum*

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

**BETWEEN** the Owner:  
*(Name, legal status, address and other information)*

The Owner is a Governmental Body of the State of South Carolina as defined in S.C. Code Ann. § 11-35-310.

and the Contractor:  
*(Name, legal status, address and other information)*

for the following Project:  
*(Name, State Project Number, location and detailed description)*

The Architect:  
*(Name, legal status, address and other information)*

This version of AIA Document A101–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer. Publication of this version of AIA Document A101 does not imply the American Institute of Architects' endorsement of any modification by South Carolina Division of Procurement Services, Office of State Engineer. A comparative version of AIA Document A101–2017 showing additions and deletions by the South Carolina Division of Procurement Services, Office of State Engineer is available for review on South Carolina state Web site.

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

The Owner and Contractor agree as follows.

## TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	THE WORK OF THIS CONTRACT
3	DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
4	CONTRACT SUM
5	PAYMENTS
6	DISPUTE RESOLUTION
7	TERMINATION OR SUSPENSION
8	MISCELLANEOUS PROVISIONS
9	ENUMERATION OF CONTRACT DOCUMENTS

## EXHIBIT A INSURANCE AND BONDS

### ARTICLE 1 THE CONTRACT DOCUMENTS

§ 1.1 The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

§ 1.2 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 A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. 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 A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

### ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

### ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The Date of Commencement of the Work shall be 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 (7) 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.

§ 3.2 The Contract Time as provided in the Notice to Proceed for this project shall be measured from the Date of Commencement of the Work to Substantial Completion.

#### § 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work within the Contract Time indicated in the Notice to Proceed.

§ 3.3.2 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

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**ARTICLE 4 CONTRACT SUM**

§ 4.1 The Owner shall pay the Contractor the Contract Sum, including all accepted alternates indicated in the bid documents, in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be

(\$ \_\_\_\_\_), subject to additions and deductions as provided in the Contract Documents.

**§ 4.2 Alternates**

§ 4.2.1 Alternates that are accepted, if any, included in the Contract Sum:

*(Insert the accepted Alternates.)*

Item	Price
------	-------

§ 4.3 Allowances, if any, included in the Contract Sum:

*(Identify each allowance.)*

Item	Price
------	-------

§ 4.4 Unit prices, if any:

*(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

**§ 4.5 Liquidated damages**

§ 4.5.1 Contractor agrees that from the compensation to be paid, the Owner shall retain as liquidated damages the amount indicated in Section 9(b) of the Bid Form 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. The liquidated damages amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty.

§ 4.6 Other:

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

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## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect and Owner by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 The Owner shall make payment of the certified amount to the Contractor not later than twenty-one (21) days after receipt of the Application for Payment.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to S.C. Code Ann. § 12-8-550 (Withholding Requirements for Payments to Non-Residents), in accordance with AIA Document A201®-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

### § 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold three and one-half percent (3.5%), as retainage, from the payment otherwise due.

§ 5.1.7.2 When a portion, or division, of Work as listed in the Schedule of Values is 100% complete, that portion of the retained funds which is allocable to the completed division must be released to the Contractor. No later than ten (10) days after receipt of retained funds from the Owner, the Contractor shall pay to the subcontractor responsible for such completed work the full amount of retainage allocable to the subcontractor's work.

§ 5.1.7.3 Upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7.

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§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

## § 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than twenty-one (21) days after the issuance of the Architect’s final Certificate for Payment.

## ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Claims and disputes shall be resolved in accordance with Article 15 of AIA Document A201–2017.

## ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:

§ 8.2.1 The 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:**

**Title:**

**Address:**

**Telephone:**

**Email:**

§ 8.2.2 The 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:**

**Email:**

§ 8.3 The Contractor’s representative:

§ 8.3.1 The 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:**

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**Title:**  
**Address:**  
**Telephone:**  
**Email:**

§ 8.3.2 The 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:**  
**Email:**

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 The Architect's representative:

**Name:**  
**Title:**  
**Address:**  
**Telephone:**  
**Email:**

#### § 8.6 Insurance and Bonds

§ 8.6.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101®–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.6.2 The Contractor shall provide bonds as set forth in AIA Document A101®–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.7 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

#### § 8.8 Other Provisions:

§ 8.8.1 Additional requirements, if any, for the Contractor's Construction 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 milestone dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents.

- .1 Upon review by the Owner and the Architect for conformance with milestone dates and Construction Time given in the Bidding Documents, with associated Substantial Completion date, the Construction Schedule shall be deemed part of the Contract Documents and attached to the Agreement as an Exhibit. If returned for non-conformance, the Construction Schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted.

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- .2 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 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 Construction Schedule to reflect such conditions.
- .3 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.
- .4 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.

**§ 8.8.2** The Owner’s review of the Contractor’s schedule is not conducted for the purpose of either determining its accuracy, completeness, or approving the construction means, methods, techniques, sequences or procedures. The Owner’s review shall not relieve the Contractor of any obligations.

**ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS**

**§ 9.1** This Agreement is comprised of the following documents:

- .1 AIA Document A101®–2017, SCOSE Version Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101®–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201®–2017, SCOSE Version General Conditions of the Contract for Construction
- .4 Form SE-390, Notice to Proceed – Construction Contract
- .5 Drawings

Number	Title	Date
--------	-------	------

- .6 Specifications

Section	Title	Date	Pages
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- .7 Addenda, if any:

Number	Date	Pages
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Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

**.8 Other Exhibits:**  
*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:  
*(Insert the date of the E204-2017 incorporated into this Agreement.)*

The Sustainability Plan:

Title	Date	Pages
-------	------	-------

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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**.9 Other documents, if any, listed below:**  
*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201®–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor’s bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

- Form SE-310, Invitation for Construction Services**
- Instructions to Bidders (AIA Document A701-2018 OSE Version)**
- Form SE-330, Contractor’s Bid (Completed Bid Form)**
- Form SE-370, Notice of Intent to Award**
- Certificate of Procurement Authority issued by the State Fiscal Accountability Authority**

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

\_\_\_\_\_  
**OWNER** *(Signature)*

\_\_\_\_\_  
**CONTRACTOR** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
*(Printed name and title)*

Init.

# South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A101® – 2017 Exhibit A

## Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_  
*(In words, indicate day, month and year.)*

for the following **PROJECT**:  
*(Name, State Project Number, and location or address)*

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

The Owner is a Governmental Body of the State of South Carolina as defined by Title 11, Chapter 35 of the South Carolina Code of Laws, as amended.

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

### TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

### ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201®–2017, General Conditions of the Contract for Construction, SCOSE Version.

This version of AIA Document A101–2017 Exhibit A is modified by the South Carolina Division of Procurement, Office of State Engineer. Publication of this version of AIA Document A101 Exhibit A does not imply the American Institute of Architects' endorsement of any modification by the South Carolina Division of Procurement, Office of State Engineer.

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

## ARTICLE A.2 OWNER'S INSURANCE

### § A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

### § A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

### § A.2.3 Reserved

#### § A.2.3.1 Reserved

##### § A.2.3.1.1 Reserved

##### § A.2.3.1.2 Reserved

##### § A.2.3.1.3 Reserved

##### § A.2.3.1.4 Reserved

#### § A.2.3.2 Reserved

#### § A.2.3.3 Reserved

### § A.2.4 Optional Insurance.

The Owner shall purchase and maintain any insurance selected below.

- § A.2.4.1 Other Insurance**  
*(List below any other insurance coverage to be provided by the Owner and any applicable limits.)*

Coverage

Limits

## ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

### § A.3.1 General

**§ A.3.1.1 Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies. 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.

**§ A.3.1.2 Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

**§ A.3.1.3 Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the

Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

**§ A.3.1.4** A failure by the Owner to either (i) demand a certificate of insurance or written endorsement required by Section A.3, or (ii) reject a certificate or endorsement on the grounds that it fails to comply with Section A.3, shall not be considered a waiver of Contractor's obligations to obtain the required insurance.

### **§ A.3.2 Contractor's Required Insurance Coverage**

**§ A.3.2.1** The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, for such other period for maintenance of completed operations coverage as specified in the Contract Documents, or unless a different duration is stated below:

*(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)*

### **§ A.3.2.2 Commercial General Liability**

**§ A.3.2.2.1** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than \$1,000,000 each occurrence, \$1,000,000 general aggregate, \$1,000,000 aggregate for products-completed operations hazard, \$1,000,000 personal and advertising injury, \$50,000 fire damage (any one fire), and \$5,000 medical expense (any one person) providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

**§ A.3.2.2.2** The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.



§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than \$1,000,000 per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability, Employers Liability, and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers. The umbrella policy limits shall not be less than \$3,000,000.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than \$100,000 each accident, \$100,000 each employee, and \$500,000 policy limit for claims, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks.

§ A.3.2.8 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

§ A.3.2.9 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than (\$ ) per claim and (\$ ) in the aggregate.

### § A.3.3 Required Property Insurance

§ A.3.3.1 The Contractor shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Contractor's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.3.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds.

§ A.3.3.1.1 **Causes of Loss.** The insurance required by this Section A.3.3.1 shall provide coverage for direct physical loss or damage and shall include the risks of fire (with extended coverage), explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, workmanship, or materials. (Indicate below the cause of loss and any applicable sub-limit.)

**Causes of Loss**

**Sub-Limit**

§ A.3.3.1.2 **Specific Required Coverages.** The insurance required by this Section A.3.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. (Indicate below the cause of loss and any applicable sub-limit.)

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**§ A.3.3.1.3** Unless the parties agree otherwise, upon Substantial Completion, the Owner shall replace the insurance policy required under Section A.3.3.1 with property insurance written for the total value of the Project.

**§ A.3.3.1.4 Deductibles and Self-Insured Retentions.** If the insurance required by this Section A.3.3 is subject to deductibles or self-insured retentions, the Contractor shall be responsible for all loss not covered because of such deductibles or retentions.

**§ A.3.3.2 Occupancy or Use Prior to Substantial Completion.** The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.3.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

**§ A.3.3.3** 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.

**§ A.3.3.4** 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 A.3.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project.

**§ A.3.4 Contractor's Other Insurance Coverage**

**§ A.3.4.1** Insurance selected and described in this Section A.3.4 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)*

**§ A.3.4.2** The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.4.1.

*(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)*

- § A.3.4.2.1 Reserved**
- § A.3.4.2.2** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.
- § A.3.4.2.3** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.
- § A.3.4.2.4 Boiler and Machinery Insurance**  
The Contractor shall purchase and maintain boiler and machinery insurance as required, 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 be named insureds.

**§ A.3.5 Performance Bond and Payment Bond**

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

*(Specify type and penal sum of bonds.)*

Type	Penal Sum (\$0.00)
Payment Bond	
Performance Bond	

**§ A.3.5.1** Before commencing any services hereunder, the Contractor shall provide the Owner with Performance and Payment Bonds, each in an amount not less than the Contract Price set forth in Article 4 of the Agreement. The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount. The Performance Bond shall be written on Form SE-355, "Performance Bond" and the Payment Bond shall be written on Form SE-357, "Labor and Material Payment Bond", and both shall be made payable to the Owner.

**§ A.3.5.2** 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.

**§ A.3.5.3** Any bonds required by this Contract shall meet the requirements of the South Carolina Code of Laws and Regulations, as amended.

**ARTICLE A.4 SPECIAL TERMS AND CONDITIONS**

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

**South Carolina Division of Procurement  
Services, Office of State Engineer Version of  
 AIA<sup>®</sup> Document A201<sup>®</sup> – 2017**

***General Conditions of the Contract for Construction***

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# South Carolina Division of Procurement Services, Office of State Engineer Version of AIA® Document A201® – 2017

## General Conditions of the Contract for Construction

for the following PROJECT:

*(Name, State Project Number, and location or address)*

**THE OWNER:**

*(Name, legal status, and address)*

The Owner is a Governmental Body of the State of South Carolina as defined in S.C. Code Ann. § 11-35-310.

**THE ARCHITECT:**

*(Name, legal status, and address)*

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

### TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION

- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES
- 16 PROJECT SPECIFIC REQUIREMENTS AND INFORMATION

Init.

/

## INDEX

(Topics and numbers in bold are Section headings.)

### Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3

### Access to Work

**3.16**, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,

10.2.8, 13.3.2, 14.1, 15.1.2, 15.2

Addenda

1.1.1

Additional Costs, Claims for

3.7.4, 3.7.5, 10.3.2, 15.1.5

### Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.4**

### Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**

### Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

### Allowances

**3.8**

### Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

Approvals

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9,

3.12.10.1, 4.2.7, 9.3.2, 13.4.1

### Arbitration

8.3.1, 15.3.2, **15.4**

## ARCHITECT

**4**

Architect, Definition of

**4.1.1**

Architect, Extent of Authority

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2,

9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1,

13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3,

4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2,

9.5.4, 9.6.4, 15.1.4, 15.2

Architect's Additional Services and Expenses

2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

Architect's Copyright

1.1.7, 1.5

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,

7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,

13.4.2, 15.2

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,

3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16,

3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5,

9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.6.8, 9.10.2, 10.3.3

Award of Separate Contracts

6.1.1, 6.1.2

### Award of Subcontracts and Other Contracts for Portions of the Work

**5.2**

### Basic Definitions

**1.1**

Bidding Requirements

1.1.1

Binding Dispute Resolution

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5,

15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1

Bonds, Lien

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

### Bonds, Performance, and Payment

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**

### Building Information Models Use and Reliance

**1.8**

Building Permit

3.7.1

### Capitalization

**1.3**

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

### Certificates for Payment

4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7,

9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4

Certificates of Inspection, Testing or Approval

13.4.4

Init.

Certificates of Insurance  
9.10.2  
**Change Orders**  
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3,  
7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1,  
9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2  
**Change Orders**, Definition of  
**7.2.1**  
**CHANGES IN THE WORK**  
2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1,  
11.5  
**Claims**, Definition of  
**15.1.1**  
Claims, Notice of  
1.6.2, 15.1.3  
**CLAIMS AND DISPUTES**  
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4  
Claims and Timely Assertion of Claims  
15.4.1  
**Claims for Additional Cost**  
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**  
**Claims for Additional Time**  
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**  
**Concealed or Unknown Conditions, Claims for**  
**3.7.4**  
Claims for Damages  
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3,  
11.3.2, 14.2.4, 15.1.7  
Claims Subject to Arbitration  
15.4.1  
**Cleaning Up**  
**3.15**, 6.3  
Commencement of the Work, Conditions Relating to  
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3,  
6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**  
**Commencement of the Work**, Definition of  
**8.1.2**  
**Communications**  
3.9.1, **4.2.4**  
Completion, Conditions Relating to  
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1,  
9.10, 12.2, 14.1.2, 15.1.2  
**COMPLETION, PAYMENTS AND**  
**9**  
Completion, Substantial  
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1,  
9.10.3, 12.2, 15.1.2  
Compliance with Laws  
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1,  
13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8,  
15.4.2, 15.4.3  
Concealed or Unknown Conditions  
3.7.4, 4.2.8, 8.3.1, 10.3  
Conditions of the Contract  
1.1.1, 6.1.1, 6.1.4  
Consent, Written  
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2,  
15.4.4.2

**Consolidation or Joinder**  
**15.4.4**  
**CONSTRUCTION BY OWNER OR BY**  
**SEPARATE CONTRACTORS**  
1.1.4, **6**  
**Construction Change Directive**, Definition of  
**7.3.1**  
**Construction Change Directives**  
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**,  
9.3.1.1  
Construction Schedules, Contractor's  
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2  
**Contingent Assignment of Subcontracts**  
**5.4**, 14.2.2.2  
**Continuing Contract Performance**  
**15.1.4**  
**Contract**, Definition of  
**1.1.2**  
**CONTRACT, TERMINATION OR**  
**SUSPENSION OF THE**  
5.4.1.1, 5.4.2, 11.5, **14**  
Contract Administration  
3.1.3, 4, 9.4, 9.5  
Contract Award and Execution, Conditions Relating  
to  
3.7.1, 3.10, 5.2, 6.1  
Contract Documents, Copies Furnished and Use of  
1.5.2, 2.3.6, 5.3  
**Contract Documents**, Definition of  
**1.1.1**  
**Contract Sum**  
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4,  
**9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2,  
12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5**, **15.2.5**  
**Contract Sum**, Definition of  
**9.1**  
Contract Time  
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5,  
7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1,  
8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2,  
14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5  
**Contract Time**, Definition of  
8.1.1  
**CONTRACTOR**  
**3**  
Contractor, Definition of  
**3.1**, **6.1.2**  
**Contractor's Construction and Submittal**  
**Schedules**  
**3.10**, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2  
Contractor's Employees  
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,  
10.3, 11.3, 14.1, 14.2.1.1  
**Contractor's Liability Insurance**  
**11.1**  
Contractor's Relationship with Separate Contractors  
and Owner's Forces  
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4



Contractor's Relationship with Subcontractors  
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4

Contractor's Relationship with the Architect  
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1

Contractor's Representations  
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the Work  
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents  
3.2

Contractor's Right to Stop the Work  
2.2.2, 9.7

Contractor's Right to Terminate the Contract  
14.1

Contractor's Submittals  
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3

Contractor's Superintendent  
3.9, 10.2.6

Contractor's Supervision and Construction Procedures  
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4

Coordination and Correlation  
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

Copies Furnished of Drawings and Specifications  
1.5, 2.3.6, 3.11

Copyrights  
1.5, **3.17**

Correction of Work  
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1

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

**Cost**, Definition of  
**7.3.4**

Costs  
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14

**Cutting and Patching**  
**3.14**, 6.2.5

Damage to Construction of Owner or Separate Contractors  
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damage to the Work  
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damages, Claims for  
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7

Damages for Delay  
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2

**Date of Commencement of the Work**, Definition of  
**8.1.2**

**Date of Substantial Completion**, Definition of  
**8.1.3**

**Day**, Definition of  
**8.1.4**

Decisions of the Architect  
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2

**Decisions to Withhold Certification**  
9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance, Rejection and Correction of  
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1

Definitions  
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

**Delays and Extensions of Time**  
**3.2**, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5

**Digital Data Use and Transmission**  
**1.7**

Disputes  
6.3, 7.3.9, 15.1, 15.2

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

**Drawings**, Definition of  
**1.1.5**

Drawings and Specifications, Use and Ownership of  
3.11

Effective Date of Insurance  
8.2.2

**Emergencies**  
**10.4**, 14.1.1.2, **15.1.5**

Employees, Contractor's  
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1

Equipment, Labor, or Materials  
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work  
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

Extensions of Time  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**

**Failure of Payment**  
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Faulty Work  
(See Defective or Nonconforming Work)

**Final Completion and Final Payment**  
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3

Financial Arrangements, Owner's  
2.2.1, 13.2.2, 14.1.1.4

## GENERAL PROVISIONS

### 1

#### Governing Law

##### 13.1

Guarantees (See Warranty)

#### Hazardous Materials and Substances

##### 10.2.4, 10.3

Identification of Subcontractors and Suppliers

##### 5.2.1

#### Indemnification

3.17, 3.18, 9.6.8, 9.10.2, 10.3.3, 11.3

#### Information and Services Required of the Owner

2.1.2, 2.2, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,

9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,

14.1.1.4, 14.1.4, 15.1.4

#### Initial Decision

##### 15.2

#### Initial Decision Maker, Definition of

1.1.8

Initial Decision Maker, Decisions

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Initial Decision Maker, Extent of Authority

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

#### Injury or Damage to Person or Property

##### 10.2.8, 10.4

Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,

9.9.2, 9.10.1, 12.2.1, 13.4

Instructions to Bidders

1.1.1

Instructions to the Contractor

3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2

#### Instruments of Service, Definition of

##### 1.1.7

Insurance

6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, 11

Insurance, Notice of Cancellation or Expiration

11.1.4, 11.2.3

#### Insurance, Contractor's Liability

##### 11.1

Insurance, Effective Date of

8.2.2, 14.4.2

#### Insurance, Owner's Liability

##### 11.2

#### Insurance, Property

##### 10.2.5, 11.2, 11.4, 11.5

Insurance, Stored Materials

9.3.2

## INSURANCE AND BONDS

### 11

Insurance Companies, Consent to Partial Occupancy

9.9.1

Insured loss, Adjustment and Settlement of

11.5

Intent of the Contract Documents

1.2.1, 4.2.7, 4.2.12, 4.2.13

#### Interest

##### 13.5

#### Interpretation

1.1.8, 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1

Interpretations, Written

4.2.11, 4.2.12

Judgment on Final Award

15.4.2

#### Labor and Materials, Equipment

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,

10.2.4, 14.2.1.1, 14.2.1.2

Labor Disputes

8.3.1

Laws and Regulations

1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,

9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,

15.4

Liens

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Limitations, Statutes of

12.2.5, 15.1.2, 15.4.1.1

Limitations of Liability

3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,

4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,

11.3, 12.2.5, 13.3.1

Limitations of Time

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,

5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,

9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,

15.1.2, 15.1.3, 15.1.5

#### Materials, Hazardous

##### 10.2.4, 10.3

Materials, Labor, Equipment and

1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,

10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2

Means, Methods, Techniques, Sequences and

Procedures of Construction

3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2

Mechanic's Lien

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

#### Mediation

8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1,

15.4.1.1

#### Minor Changes in the Work

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4

## MISCELLANEOUS PROVISIONS

### 13

#### Modifications, Definition of

##### 1.1.1

Modifications to the Contract

1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,

10.3.2

#### Mutual Responsibility

##### 6.2

#### Nonconforming Work, Acceptance of

9.6.6, 9.9.3, 12.3

Init.

/

Nonconforming Work, Rejection and Correction of  
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,  
12.2

**Notice**  
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4,  
3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4,  
8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1,  
13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5,  
15.1.6, 15.4.1

Notice of Cancellation or Expiration of Insurance  
11.1.4, 11.2.3

**Notice of Claims**  
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6,  
15.2.8, 15.3.2, 15.4.1

Notice of Testing and Inspections  
13.4.1, 13.4.2

Observations, Contractor’s  
3.2, 3.7.4

Occupancy  
2.3.1, 9.6.6, 9.8

Orders, Written  
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2,  
14.3.1

**OWNER**  
**2**

**Owner, Definition of**  
**2.1.1**

**Owner, Evidence of Financial Arrangements**  
**2.2**, 13.2.2, 14.1.1.4

**Owner, Information and Services Required of the**  
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2,  
9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,  
14.1.1.4, 14.1.4, 15.1.4

Owner’s Authority  
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2,  
4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1,  
7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2,  
10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4,  
15.2.7

**Owner’s Insurance**  
**11.2**

Owner’s Relationship with Subcontractors  
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

**Owner’s Right to Carry Out the Work**  
**2.5**, 14.2.2

**Owner’s Right to Clean Up**  
**6.3**

**Owner’s Right to Perform Construction and to Award Separate Contracts**  
**6.1**

**Owner’s Right to Stop the Work**  
**2.4**

Owner’s Right to Suspend the Work  
14.3

Owner’s Right to Terminate the Contract  
14.2, 14.4

**Ownership and Use of Drawings, Specifications and Other Instruments of Service**  
1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12,  
5.3

**Partial Occupancy or Use**  
9.6.6, **9.9**

**Patching, Cutting and**  
**3.14**, 6.2.5

Patents  
3.17

**Payment, Applications for**  
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1,  
14.2.3, 14.2.4, 14.4.3

**Payment, Certificates for**  
4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,  
9.10.3, 14.1.1.3, 14.2.4

**Payment, Failure of**  
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Payment, Final  
4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3

**Payment Bond, Performance Bond and**  
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**

**Payments, Progress**  
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

**PAYMENTS AND COMPLETION**  
**9**

Payments to Subcontractors  
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

PCB  
10.3.1

**Performance Bond and Payment Bond**  
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**

**Permits, Fees, Notices and Compliance with Laws**  
2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2

**PERSONS AND PROPERTY, PROTECTION OF**  
**10**

Polychlorinated Biphenyl  
10.3.1

**Product Data, Definition of**  
**3.12.2**

**Product Data and Samples, Shop Drawings**  
3.11, **3.12**, 4.2.7

**Progress and Completion**  
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4

**Progress Payments**  
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

**Project, Definition of**  
**1.1.4**

Project Representatives  
4.2.10

**Property Insurance**  
10.2.5, **11.2**

**Proposal Requirements**  
1.1.1

**PROTECTION OF PERSONS AND PROPERTY**  
**10**

Regulations and Laws  
 1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1,  
 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4

Rejection of Work  
 4.2.6, 12.2.1

Releases and Waivers of Liens  
 9.3.1, 9.10.2

Representations  
 3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1

Representatives  
 2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1

Responsibility for Those Performing the Work  
 3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10

Retainage  
 9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3

**Review of Contract Documents and Field  
 Conditions by Contractor**  
**3.2**, 3.12.7, 6.1.3

Review of Contractor's Submittals by Owner and  
 Architect  
 3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2

Review of Shop Drawings, Product Data and Samples  
 by Contractor  
 3.12

**Rights and Remedies**  
 1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1,  
 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2,  
 12.2.4, **13.3**, 14, 15.4

**Royalties, Patents and Copyrights**  
**3.17**

Rules and Notices for Arbitration  
 15.4.1

**Safety of Persons and Property**  
**10.2**, 10.4

**Safety Precautions and Programs**  
 3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4

**Samples, Definition of**  
**3.12.3**

**Samples, Shop Drawings, Product Data and**  
 3.11, **3.12**, 4.2.7

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

**Schedule of Values**  
**9.2**, 9.3.1

Schedules, Construction  
 3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Separate Contracts and Contractors  
 1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2

**Separate Contractors, Definition of**  
**6.1.1**

**Shop Drawings, Definition of**  
**3.12.1**

**Shop Drawings, Product Data and Samples**  
 3.11, **3.12**, 4.2.7

**Site, Use of**  
**3.13**, 6.1.1, 6.2.1

Site Inspections  
 3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4

Site Visits, Architect's  
 3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Special Inspections and Testing  
 4.2.6, 12.2.1, 13.4

**Specifications, Definition of**  
**1.1.6**

**Specifications**  
 1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14

Statute of Limitations  
 15.1.2, 15.4.1.1

Stopping the Work  
 2.2.2, 2.4, 9.7, 10.3, 14.1

Stored Materials  
 6.2.1, 9.3.2, 10.2.1.2, 10.2.4

**Subcontractor, Definition of**  
**5.1.1**

**SUBCONTRACTORS**  
**5**

Subcontractors, Work by  
 1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2,  
 9.6.7

**Subcontractual Relations**  
**5.3**, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1

Submittals  
 3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8,  
 9.9.1, 9.10.2, 9.10.3

Submittal Schedule  
 3.10.2, 3.12.5, 4.2.7

**Subrogation, Waivers of**  
 6.1.1, **11.3**

**Substances, Hazardous**  
**10.3**

**Substantial Completion**  
 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2,  
 15.1.2

**Substantial Completion, Definition of**  
**9.8.1**

Substitution of Subcontractors  
 5.2.3, 5.2.4

Substitution of Architect  
 2.3.3

Substitutions of Materials  
 3.4.2, 3.5, 7.3.8

**Sub-subcontractor, Definition of**  
**5.1.2**

Subsurface Conditions  
 3.7.4

**Successors and Assigns**  
**13.2**

**Superintendent**  
**3.9**, 10.2.6

**Supervision and Construction Procedures**  
 1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3,  
 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4

Suppliers  
 1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6,  
 9.10.5, 14.2.1

Surety  
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2,  
15.2.7  
Surety, Consent of  
9.8.5, 9.10.2, 9.10.3  
Surveys  
1.1.7, 2.3.4  
**Suspension by the Owner for Convenience**  
**14.3**  
Suspension of the Work  
3.7.5, 5.4.2, 14.3  
Suspension or Termination of the Contract  
5.4.1.1, 14  
**Taxes**  
3.6, 3.8.2.1, 7.3.4.4  
**Termination by the Contractor**  
**14.1, 15.1.7**  
**Termination by the Owner for Cause**  
5.4.1.1, **14.2, 15.1.7**  
**Termination by the Owner for Convenience**  
**14.4**  
Termination of the Architect  
2.3.3  
Termination of the Contractor Employment  
14.2.2

**TERMINATION OR SUSPENSION OF THE CONTRACT**  
**14**  
**Tests and Inspections**  
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**  
**TIME**  
**8**  
**Time, Delays and Extensions of**  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3, 9.5.1, 9.7,**  
10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5  
Time Limits  
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2,  
5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1,  
9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2,  
15.1.3, 15.4  
**Time Limits on Claims**  
3.7.4, 10.2.8, 15.1.2, 15.1.3

Title to Work  
9.3.2, 9.3.3  
**UNCOVERING AND CORRECTION OF WORK**  
**12**  
**Uncovering of Work**  
**12.1**  
Unforeseen Conditions, Concealed or Unknown  
3.7.4, 8.3.1, 10.3  
Unit Prices  
7.3.3.2, 9.1.2  
Use of Documents  
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3  
**Use of Site**  
**3.13, 6.1.1, 6.2.1**  
**Values, Schedule of**  
**9.2, 9.3.1**  
Waiver of Claims by the Architect  
13.3.2  
Waiver of Claims by the Contractor  
9.10.5, 13.3.2, **15.1.7**  
Waiver of Claims by the Owner  
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**  
Waiver of Consequential Damages  
14.2.4, 15.1.7  
Waiver of Liens  
9.3, 9.10.2, 9.10.4  
**Waivers of Subrogation**  
6.1.1, **11.3**  
**Warranty**  
**3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2,**  
15.1.2  
Weather Delays  
8.3, 15.1.6.2  
**Work, Definition of**  
**1.1.3**  
Written Consent  
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3,  
13.2, 13.3.2, 15.4.4.2  
Written Interpretations  
4.2.11, 4.2.12  
Written Orders  
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

#### § 1.1.1 The Contract Documents

- .1 The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract.
- .2 A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect.
- .3 Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.
- .4 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 A101-2017, Standard Form of Agreement Between Owner and Contractor, SCOSE Version.
- .5 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 A201-2017, General Conditions of the Contract for Construction, SCOSE Version.

#### § 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor.

#### § 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### § 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### § 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

#### § 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### § 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### § 1.1.8 Reserved

#### § 1.1.9 Notice to Proceed

Init.

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The Notice to Proceed is a document issued by the Owner to the Contractor 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 and establish the initial date of the Substantial Completion.

#### **§ 1.1.10 State Engineer**

“State Engineer” means the person holding the position as head of the State Engineer’s Office. The State Engineer’s Office is created by S.C. Code Ann. § 11-35-830, and is sometimes referred to in the Contract Documents as “Office of State Engineer” or “OSE.” The State Engineer is also the Chief Procurement Officer for Construction, sometimes referred to in the Contract Documents as “CPOC”.

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

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. 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.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, 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.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

#### **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

#### **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

#### **§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service**

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

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect’s consultants.

#### **§ 1.6 Notice**

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to

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whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.6.3 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 Section 1.6.1.

### § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation, including in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### § 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## ARTICLE 2 OWNER

### § 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, except as provided in Section 7.1.7. 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 noted in the Agreement.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen (15) days after receipt of a written request, information necessary and relevant for the Contractor to post Notice of Project Commencement pursuant to S.C. Code Ann. § 29-5-23.

### § 2.2 Reserved

### § 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

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

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. 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.



§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services. 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 provided in the Contract Documents.

§ 2.3.6 The Owner shall furnish the Contract Documents to the Contractor in digital format.

#### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect, 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 default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### ARTICLE 3 CONTRACTOR

#### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's Representative noted in the Agreement.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

- .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 (a) conditions bearing upon transportation, disposal, handling, and storage of materials; (b) the availability of labor, water, electric power, and roads; (c) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (d) the conformation and conditions of the ground; and (e) the character of equipment and facilities needed preliminary to and during work performance.
- .2 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.

- 3 Any failure of the Contractor to take the actions described and acknowledged in this Section 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.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from latent errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

### § 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction and provide its findings to the Owner. Unless the Owner objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

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## § 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.2.1 After the Contract has been executed, the Owner and Architect may consider requests for the substitution of products in place of those specified. The Owner and Architect may, but are not obligated to, consider only those substitution requests that are in full compliance with the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

- .1 represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified;
- .2 represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3 certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be performed or changes as a result of the substitution, except for the Architect's re-design costs, and waives all claims for additional costs related to the substitution that subsequently become apparent;
- .4 agrees that it shall, if the substitution is approved, coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects; and
- .5 represents that the request includes a written representation identifying any potential effect the substitution may have on Project's achievement of a Sustainable Measure or the Sustainable Objective.

§ 3.4.2.2 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

## § 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements 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. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

## § 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The Contractor shall comply with the requirements of S.C Code Ann. Title 12, Chapter 8, regarding withholding tax for nonresidents, employees, contractors and subcontractors.

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

§ 3.7.1 Pursuant to S.C. Code Ann. § 10-1-180, no local general or specialty building permits are required for state buildings. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for all other permits, fees, and licenses by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### § 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### § 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual costs, as documented by invoices, and the allowances under Section 3.8.2.1.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent, acceptable to the Owner, and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Owner may notify the Contractor, stating whether the Owner has reasonable objection to the proposed superintendent. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner has made reasonable and timely objection. The Contractor shall notify the Owner of any proposed change in the superintendent, including the reason therefore, prior to making such change. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

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

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. Subject to any additional requirements in the Contract Documents, the schedule shall contain detail appropriate for the Project, including at a minimum (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

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

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.



§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

- .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.
- .2 The fire sprinkler shop drawings shall be reviewed and approved by the Architect's engineer of record (EOR) prior to submittal to the State Fire Marshal. The EOR will complete the Office of State Fire Marshal (OSFM) form "Request for Fire Sprinkler System Shop Review for State Construction Projects" and submit it to OSE for signature.
- .3 OSE will sign the form and return it to the Architect's EOR. The EOR will submit a copy of the signed form with the approved shop drawings to OSFM for review and approval; and, forward a copy of each to OSE.
- .4 Upon receipt of the OSFM approval letter, the EOR will forward a copy of the letter to the Owner, Contractor, Architect, and OSE.
- .5 Unless authorized in writing by OSE, neither the Contractor nor subcontractor at any tier shall submit the fire sprinkler shop drawings directly to OSFM.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, who shall comply with reasonable requirements of the Owner regarding qualifications and insurance and whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to

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the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

### § 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

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

### § 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### § 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### § 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

### § 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### § 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but

only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## ARTICLE 4 ARCHITECT

### § 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

### § 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents. 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 ten (10) days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

§ 4.2.2 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 portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) deviations from the Contract Documents, (2) deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

### § 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Work completed and correlated with the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.



**§ 4.2.6** The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

**§ 4.2.11** The Architect 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 other party with a copy of the request. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, and will not show partiality to either. Except in the case of interpretations resulting in omissions, defects, or errors in the Instruments of Service or perpetuating omissions, defects or errors in the Instruments of Service, the Architect will not be liable for results of interpretations or decisions rendered in good faith. If either party disputes the Architect's 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.

**§ 4.2.13** The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

**§ 4.2.14** The Architect 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.

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Unless issued pursuant to a Modification, supplemental Drawings or Specifications will not involve an adjustment to the Contract Sum or Contract Time.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 Definitions**

**§ 5.1.1** A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a Separate Contractor or the subcontractors of a Separate Contractor.

**§ 5.1.2** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work**

**§ 5.2.1** Unless otherwise stated in the Contract Documents, the Contractor, within fourteen (14) days after posting of the Notice of Intent to Award the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Owner may notify the Contractor whether the Owner has reasonable objection to any such proposed person or entity. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 5.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner 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 service.

**§ 5.2.3** If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor’s Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

**§ 5.2.4** The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner makes reasonable objection to such substitution. The Contractor’s request for substitution must be made to the Owner in writing, accompanied by supporting information.

**§ 5.2.5** A Subcontractor identified in the Contractor’s Bid pursuant to the subcontractor listing requirements of Section 7 of the Bid Form may only be substituted in accordance with and as permitted by the provisions of S.C. Code Ann. § 11-35-3021. A proposed substitute for a listed subcontractor shall also be subject to the Owner’s approval as set forth in Section 5.2.3.

**§ 5.2.6** A Contractor may substitute one prospective subcontractor for another, with the approval of the Owner as follows:

- .1 If the Contractor requests the substitution, the Contractor is responsible for all costs associated with the substitution.
- .2 If the Owner requests the substitution, the Owner is responsible for any resulting increased costs to the Contractor.

### **§ 5.3 Subcontractual Relations**

**§ 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 that the Contractor, by these Contract 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, 7.1.6, 7.3.3, 7.5, 13.1, 13.9, 14.3, 14.4, and 15.1.7.

§ 5.3.3 Each Subcontract Agreement and each Sub-subcontract agreement shall exclude, and shall be deemed to exclude, Sections 13.2 and 13.5 and all of Article 15, except Section 15.1.7, 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 and 13.5 and all of Article 15, except Section 15.1.7, 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 Section 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.

#### § 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

§ 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.

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

#### § 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to

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those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner’s own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

#### § 6.1.4 Reserved

### § 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor’s Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor’s Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner’s or Separate Contractor’s completed or partially completed construction is fit and proper to receive the Contractor’s Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor’s delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor’s delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### § 6.3 Owner’s Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.1.4 If a change in the Work provides for an adjustment to the Contract Sum, the amount of such adjustment must be computed and documented in writing. In order to facilitate evaluation of proposals or claims for increases and decreases to the Contract Sum, all proposals or claims, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and subcontracts. Labor and materials shall be itemized. Where major cost items are subcontracts, they shall be itemized also. The amount of the adjustment must approximate the actual cost to the Contractor and all costs incurred by the Contractor must be justifiably compared with prevailing industry standards. Except as provided in Section 7.1.5, all adjustments to the Contract Sum shall be limited to job specific costs and shall not include indirect costs, home office overhead or profit.

§ 7.1.5 The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:

- .1 For the Contractor, for Work performed by the Contractor's own forces, seventeen (17%) percent of the Contractor's actual costs.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractors, ten (10%) percent of each Subcontractor's actual costs (not including the Subcontractor's overhead and profit).
- .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, seventeen (17%) percent of the Subcontractor's actual costs.
- .4 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.

The percentages cited above 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.

§ 7.1.6 The procedures described in Sections 7.1.4 and 7.1.5 shall be used to calculate any adjustment in the Contract Sum, including without limitation an adjustment permitted under Articles 7, 9, 14, or 15.

§ 7.1.7 If a change in the Work requires an adjustment to the Contract Sum that exceeds the limits of the Owner's Construction Change Order Certification (reference Section 9.1.9 of the Agreement), then the Owner's agreement is not effective, and Work may not proceed until approved in writing by the OSE.

§ 7.1.8 Any change in the Work initiated after the declaration of Substantial Completion must be approved in writing by the OSE regardless of the amount of the change or the Owner's Construction Change Order Certification.

## § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument, using the OSE Construction Change Order form, prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

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.

§ 7.2.2 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 7.1.4 and 7.1.5. The Owner's request shall include any revisions to the Drawings or Specifications necessary to define any changes in the Work. Within fourteen (14) days of receiving the request, the Contractor shall submit the proposal to the Owner and Architect along with all documentation required by Section 7.5.

§ 7.2.3 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 7.2.2. If the Contractor requests a change to the Work that involves a revision

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to either the Drawings or Specifications, the Contractor shall reimburse the Owner for any expenditure associated with the Architects' review of the proposed revisions, except to the extent the revisions are accepted by execution of a Change Order.

### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum if properly itemized and substantiating data is not available to permit evaluation;
- .2 Unit prices specified in the Contract Documents or subsequently agreed upon, subject to adjustment if any, as provided in Section 9.1.2;
- .3 Cost and a percentage fee, calculated as described in Sections 7.1.4 and 7.1.5;
- .4 in another manner as the parties may agree; or
- .5 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect 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 7.1.5. In such case, and also under Section 7.3.3.3, 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 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .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, directly related to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual cost including overhead and profit as confirmed by the Architect from the Schedule of Values.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The

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

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

#### § 7.5 Pricing Data and Audit

##### § 7.5.1 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 [Reference S.C. Code Ann. §§ 11-35-1830 and 11-35-2220, and SC Code Ann. Reg 19-445.2120]. 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.

§ 7.5.2 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.

##### § 7.5.3 Records Retention

As used in Section 7.5, the term "Records" means any books or records that relate to cost or pricing data of a Change Order that Contractor is required to submit pursuant to Section 7.5.1. 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.

### ARTICLE 8 TIME

#### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

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§ 8.2.2 The Contractor shall not knowingly commence the Work prior to the effective date of surety bonds and insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time, the Contract Time shall be extended for such reasonable time as the Architect may determine, 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.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### § 9.2 Schedule of Values

§ 9.2.1 The Contractor shall submit a schedule of values to the Architect within ten (10) days of full execution of the Agreement, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.2 As requested by the Architect, the Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible. The breakdown, being submitted on a uniform standardized format approved by the Architect and Owner, 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 of the Work;
- .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.



§ 9.2.3 Any schedule of values or trade breakdown that fails to provide 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.

### § 9.3 Applications for Payment

§ 9.3.1 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. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require (such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers), and shall reflect retainage as provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing, provided such materials or equipment will be subsequently incorporated in the Work. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. 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.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

### § 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated in both the Application for Payment and, if required to be submitted, the accompanying current construction schedule, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means,

methods, techniques, sequences, or procedures; or (3) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

### § 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect shall withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. 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. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

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

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

### § 9.6 Progress Payments

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

§ 9.6.2 Pursuant to S.C. Ann. §§ 29-6-10 through 29-6-60, the Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

### § 9.7 Failure of Payment

If the Architect 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 final dispute resolution order, then the Contractor may, upon seven additional days' 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 by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

### § 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive written list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect, the Owner, and any other party the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents.

- .1 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.
- .2 If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- .3 Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present at the Substantial Completion inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.





greater, the Contractor shall be responsible for any additional Architectural fees resulting from the delay.

- .3 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.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect:

- .1 an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied,
- .2 a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect,
- .3 a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents,
- .4 consent of surety, if any, to final payment,
- .5 documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties,
- .6 if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner,
- .7 required Training Manuals,
- .8 equipment Operations and Maintenance Manuals,
- .9 any certificates of testing, inspection or approval required by the Contract Documents and not previously provided, and
10. one copy of the Documents required by Section 3.11.

**§ 9.10.3** 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, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those 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.

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

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

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

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

- 3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

#### § 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### § 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance which was not discoverable as provided in Section 3.2.1 and not addressed in 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 a 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 notify the Owner and Architect of the condition. 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.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

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promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up. 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 rights of either party to disagree and assert a Claim in accordance with Article 15.

§ 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.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 In addition to its obligations under Section 3.18, the Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

#### § 10.3.6 Reserved

### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7. The Contractor shall immediately give the Owner and Architect notice of the emergency. This initial notice may be oral followed within five (5) days by a written notice setting forth the nature and scope of the emergency. Within fourteen (14) 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.

## ARTICLE 11 INSURANCE AND BONDS

### § 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Failure to Purchase Required Property Insurance.** If the Contractor fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the



Contract Documents, the Contractor shall inform the Owner in writing prior to commencement of the Work. Upon receipt of notice from the Contractor, the Owner may delay commencement of the Work and may obtain insurance that will protect the interests of the Owner in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall not be equitably adjusted. In the event the Contractor fails to procure coverage, the Contractor waives all rights against the Owner to the extent the loss to the Contractor (including Subcontractors and Sub-subcontractors) would have been covered by the insurance to have been procured by the Contractor. The cost of the insurance shall be charged to the Contractor by a Change Order. If the Contractor does not provide written notice, and the Owner is damaged by the failure or neglect of the Contractor to purchase or maintain the required insurance, the Contractor shall reimburse the Owner for all reasonable costs and damages attributable thereto.

**§ 11.1.5 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner and all additional insureds of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Owner: (1) the Owner, upon receipt of notice from the Contractor, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall not be equitably adjusted; and (3) the Contractor waives all rights against the Owner to the extent any loss to the Contractor, Subcontractors, and Sub-subcontractors would have been covered by the insurance had it not expired or been cancelled. If the Owner purchases replacement coverage, the cost of the insurance shall be charged to the Contractor by an appropriate Change Order. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

## **§ 11.2 Owner's Insurance**

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

### **§ 11.2.2 Reserved**

### **§ 11.2.3 Reserved**

## **§ 11.3 Waivers of Subrogation**

**§ 11.3.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

### **§ 11.3.3 Limitation on the Owner's Waiver of Subrogation**

South Carolina law prohibits the State from indemnifying a private party. Accordingly, and notwithstanding anything in the Agreement to the contrary, including but not limited to Sections 11.3.1, 11.3.2, and 11.4, the Owner cannot and

does not waive subrogation to the extent any losses are covered by insurance provided by the South Carolina Insurance Reserve Fund.

#### **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

#### **§ 11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Contractors 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 11.5.2. The Contractor shall pay the Architect and Owner their just shares of insurance proceeds received by the Contractor, and by appropriate agreements the Architect and Owner shall make payments to their consultants and separate contractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Contractor shall notify the Owner of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Owner shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Owner does not object, the Contractor shall settle the loss and the Owner shall be bound by the settlement and allocation. Upon receipt, the Contractor shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Owner timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Contractor may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

**§ 11.5.3** 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.

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

#### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the 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/inspection and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense unless the condition was caused by the Owner or a Separate Contractor in which event the Owner shall be responsible for payment of such costs.

#### **§ 12.2 Correction of Work**

##### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.



to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

### § 13.3 Rights and Remedies

§ 13.3.1 Unless expressly provided otherwise, duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.3.3 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
- 7.5 Pricing Data and Audit
- A.3.2.2 Contractor's Liability Insurance (A101, Exhibit A)
- A.3.5 Performance and Payment Bond (A101, Exhibit A)
- 15.1.7 Claims for Listed Damages
- 15.1.8 Waiver of Claims Against the Architect
- 15.6 Dispute Resolution
- 15.6.5 Service of Process

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Owner and Architect timely notice of when and where tests and inspections are to be made so that they may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

- .1 Inspection, Special Inspections, and testing requirements, if any, as required by the ICC series of Building Codes shall be purchased by the Owner.
- .2 Contractor shall schedule and request inspections in an orderly and efficient manner and shall notify the Owner whenever the Contractor schedules an inspection. 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.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Owner and Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense and shall be deducted from future Applications of Payment.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.5 Interest

Payments due to the Contractor and unpaid under the Contract Documents shall bear interest only if and to the extent allowed by S.C. Code Ann. §§ 29-6-10 through 29-6-60. 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.

### § 13.6 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.

### § 13.7 Interpretation of Building Codes

As required by S.C. Code Ann. § 10-1-180, 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.

### § 13.8 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.

### § 13.9 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 subcontractor's 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-subcontractor's language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at [www.procurement.sc.gov](http://www.procurement.sc.gov))

### § 13.10 Drug-Free Workplace

The Contractor must comply with the Drug-Free Workplace Act, S.C. Code Ann. §§ 44-107-10, et seq. The Contractor certifies to the Owner that Contractor will provide a Drug-Free Workplace, as defined by S.C. Code Ann. § 44-107-20(1).

### § 13.11 False Claims

According to S.C. Code Ann. § 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.



### § 13.12 Prohibited Acts

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

### § 13.13 Open Trade (Jun 2015)

During the contract term, including any renewals or extensions, Contractor will not engage in the boycott of a person or an entity based in or doing business with a jurisdiction with whom South Carolina can enjoy open trade, as defined in S.C. Code Ann. § 11-35-5300.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 Termination by the Contractor

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

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

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

### § 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials, 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 or suppliers in accordance with the Contract Documents and the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

Init.

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 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, or that the termination for cause was affected by any other error, then Owner and Contractor agree that the termination shall be conclusively deemed to be one for the convenience of the Owner, and the rights and obligations of the parties shall be the same as if the termination had been issued for in Section 14.4.

#### § 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### § 14.4 Termination by the Owner for Convenience

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

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;
- .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.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and any other adjustments otherwise set forth in the Agreement.

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

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

- .1 the termination was due to withdrawal of funding by the General Assembly, Governor, or State Fiscal Accountability Authority or the need to divert project funds to respond to an emergency as defined by Regulation 19-445.2110(B) of the South Carolina Code of Regulations, as amended;



- .2 funding for the reinstated portion of the Work has been restored;
- .3 circumstances clearly indicate a requirement for the terminated Work; and
- .4 reinstatement of the terminated work is advantageous to the Owner.

## ARTICLE 15 CLAIMS AND DISPUTES

### § 15.1 Claims

#### § 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. 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. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

#### § 15.1.2 Reserved

#### § 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the 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 under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later except as stated for adverse weather days in Section 15.1.6.2. By failing to give written notice of a Claim within the time required by this Section, a party expressly waives its Claim.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Architect is required.

#### § 15.1.4 Continuing Contract Performance

§ 15.1.4.1 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.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Architect's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

#### § 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

#### § 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. 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.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

- .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.

Init.

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

§ 15.1.6.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the work, and the number of days increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

§ 15.1.6.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

#### § 15.1.7 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.

§ 15.1.7.1 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 13.5 (Interest), (viii) lost revenue and profit for lost use of the property, (ix) costs resulting from lost productivity or efficiency.

§ 15.1.7.2 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 13.5 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14.

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

#### § 15.1.8 Waiver of Claims Against the Architect

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

§ 15.2 Reserved

§ 15.3 Reserved

§ 15.4 Reserved

**§ 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 (21) days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

§ 15.6.2 If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina's Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all Claims, 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 States 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, 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.

### ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

## USC SUPPLEMENTAL GENERAL CONDITIONS FOR CONSTRUCTION PROJECTS

### WORK AREAS

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

### PROJECT FENCING

8. All construction projects with exterior impacts shall have construction fencing at the perimeter. Fencing shall be 6' chain link with black or green privacy fabric (80-90% blockage). For fence panels with footed stands, sandbag weights shall be placed on the inside of the fence. Ripped sandbags shall be replaced immediately.
9. For projects with long fencing runs and/or high profile locations, decorative USC banners shall be used on top of privacy fabric; banners should be used at a ratio of one banner for every five fence

panels. USC Project Manager will make arrangements for banner delivery for Contractor to hang.

10. The use of plastic safety fencing is discouraged and shall only be used on a temporary basis (less than four weeks) where absolutely necessary. Safety fencing shall be a neon yellow-green, high-visibility fencing equal to 'Kryptonight' by Tenax. Safety fencing shall be erected and maintained in a neat and orderly fashion throughout the project.
11. Vehicles and all other equipment shall be contained within a fenced area if they are on site for more than 3 consecutive calendar days.

#### BEHAVIOR

12. Fraternalization between Contractor's employees and USC students, faculty or staff is strictly prohibited.
13. 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.
14. Contractor's employees must adhere to the University's policy of maintaining a drug-free and tobacco-free campus. Tobacco product trash that is found on the jobsite may result in a \$25/piece fee.

#### HAZARDOUS MATERIALS & SAFETY COMPLIANCE

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

#### LANDSCAPE & TREE PROTECTION

19. In conjunction with the construction documents, the USC Arborist shall direct methods to minimize damage to campus trees. Tree protection fencing is required to protect existing trees and other landscape features to be affected by a construction project. The location of this fence will be evaluated for each situation with the USC Arborist, Landscape Architect and Project Manager. Tree protection fencing may be required along access routes as well as within the project area itself. Fence locations may have to be reset throughout the course of the project.
20. The tree protection fence shall be 6' high chain link fence with 80-90% privacy screening unless otherwise approved by USC Arborist and/or Landscape Architect. If the tree protection fence is completely within a screened jobsite fence perimeter, privacy fabric is not required. In-ground

fence posts are preferred in most situations for greater protection. If utility or pavement conflicts are present, fence panels in footed stands are acceptable. See attached detail for typical tree protection fencing.

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

#### TEMPORARY FACILITIES

26. Contractor will be responsible for providing its own temporary toilet facilities, unless prior arrangements are made with the USC Project Manager.
27. Contractor must provide its own electrical power supply. Water may be available to the extent of existing sources. Any needed or desired taps, connections, or metering devices, shall be at the sole expense of the contractor.
28. Use of USC communications facilities (telephones, computers, etc.) by the Contractor is prohibited, unless prior arrangements are made with the USC Project Manager.

#### CAMPUS KEYS

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

#### WELDING

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

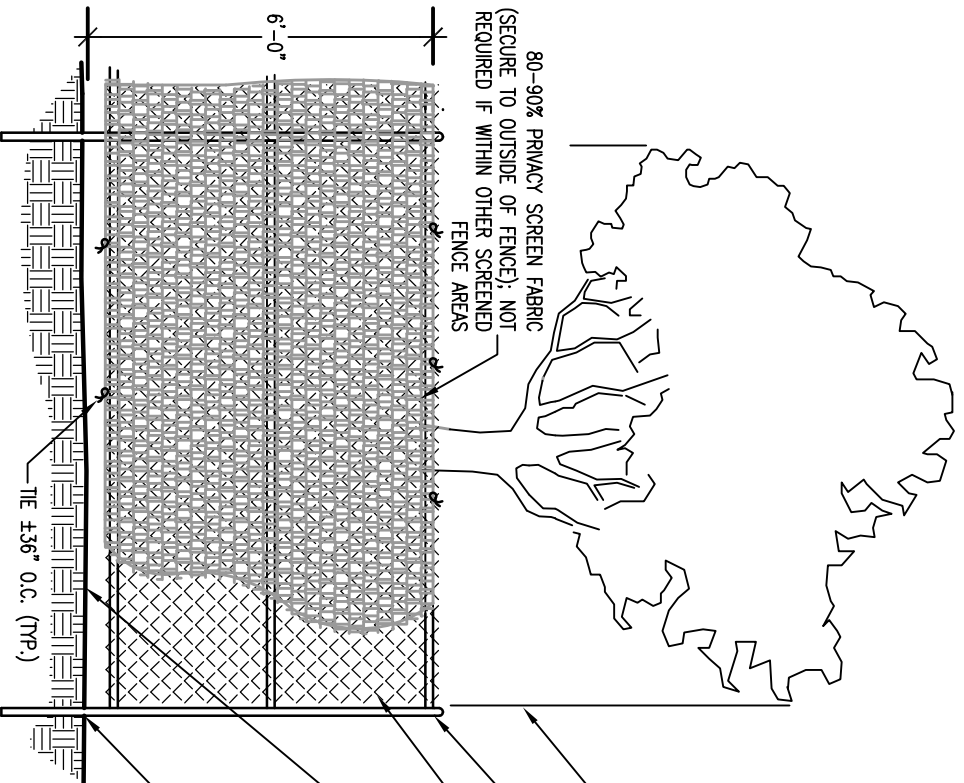


#### PROJECT EVALUATION & CLOSE-OUT

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

#### CAMPUS VEHICLE EXPECTATIONS

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



TREE CANOPY DRIPLINE:  
SEE NOTE #2.

2 1/2" O.D. GALV. FENCEPOST

CHAIN LINK FENCE PANEL

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

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

NOTES:

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

TREE PROTECTION FENCING (IN-GROUND) WITH SCREENING

NO SCALE REVISED 8.28.14

# COVID-19 RETURN TO WORK

## University of South Carolina Construction site guidelines

1. All construction companies mobilizing for a University of South Carolina construction project must submit their regular Health & Safety Plan, as well as a site specific COVID-19 Health & Safety Plan.
2. All Architectural or Engineering companies that will be visiting construction sites on campus must also submit a COVID-19 Health & Safety Plan.
3. Contractors will be expected to have the following items (at a minimum) in their safety plans;
  - a. Before mobilizing to the project site the General Contractor will work with their U of SC Project Manager to identify one point of entry and one point of exit to the jobsite if at all possible.
  - b. The General Contractor and all Subcontractors will each have one individual from their company assigned as their COVID-19 contact point for related issues.
  - c. The General Contractor will maintain a list of all individuals who access the site each day, this list will be kept for a minimum of four weeks.
  - d. The General Contractor will NOT pass around a communal sign-in sheet to create the daily attendance list when the majority of workers are arriving each day, but will have one individual responsible for creating the list as individuals arrive.
  - e. The General Contractor will ensure that workers who arrive on site each day are healthy and have no symptoms similar to those associated with COVID-19. If a worker is symptomatic, they will immediately leave campus and follow their employer's protocol. Employees should not report to work on the U of SC campus if they have any of the symptoms that are common to those who test positive for Covid-19.
  - f. Depending on the building where the construction work is taking place, the General Contractor will arrange for the start and completion of the work day to work around the times assigned for

passage between scheduled classes so that workers are not entering or exiting the jobsite as students are rotating classes.

- g. The General Contractor will encourage workers to stay on site for their whole shift, rather than leaving the site for lunch. The General Contractor will provide enough space for workers to take their lunch break without having to break the University mandated physical distancing guidelines or the maximum of 10 individuals together. If this requires allowing the workers to take their breaks and lunch in shifts, the General Contractor will accommodate this.
- h. The General Contractor and all Subcontractors will make every attempt to keep the same employees assigned to the same construction projects for the duration of their required scope of work. Assignments of rotating or random trades, work force personnel is highly discouraged.
- i. If feasible, depending on the jobsite and trade, the General Contractor and Subcontractors will divide their work crews into two separate groups that will work in separate areas and workers will not shift between groups once assigned. This should be done as, if a worker in one group is exposed and must self-quarantine, then the whole group must self-quarantine, however this will leave the separate work group able to continue working on the jobsite without shutting the whole jobsite down. The General Contractor may discuss the potential for achieving this by running two separate time shifts on the project with the U of SC Project Manager.
- j. The General Contractor will limit access to the jobsite trailer or office as required to maintain physical distancing guidelines whenever possible and face coverings will be worn if the 6' distance cannot be maintained.
- k. Architects and Engineers that need to access the construction site for inspections or other related tasks are requested to schedule their site visits for late in the day after construction work has ceased for the day, if at all possible.
- l. The GC will have signage posted on site reminding workers to maintain the minimum 6' physical distancing whenever possible and

that a face covering must be worn when that distance cannot be maintained.

- m. Workers will wear gloves at all times except when the task at hand cannot be performed safely with gloves on.
- n. Regular PPE guidelines will be maintained.
- o. Face coverings should be worn by workers whenever they are on campus and traveling to or from the job site.
- p. Workers will wash their hands each day when they enter and leave the jobsite. This is the minimum requirement and more frequent hand washing is recommended.
- q. The General Contractor/Subcontractor will provide individual bottles of water for workers on site and NOT a cooler for communal use.
- r. The General Contractor and all subcontractors should avoid having workers share tools wherever possible. If it is not possible to avoid, then tools should be cleaned before and after each individual use.
- s. The General Contractor and all subcontractors should avoid having employees share company vehicles wherever possible. If it is not possible to avoid, then the vehicle should be cleaned before and after each individual use.
- t. The General Contractor and all subcontractors will maintain a clean jobsite and trash will be removed on a daily basis by an individual who is wearing gloves and a face covering.
- u. The GC will ensure that the portable restroom facilities are sanitized daily.
- v. If a worker who has been on a U of SC construction site within the past 14 days is found to test positive for COVID-19, the General Contractor will ***immediately*** notify the U of SC Project Manager and advise which days the worker was on site and if the exposure appears to be work related or non-work related.
- w. If the GC or any of their subcontractors are advised by one of their employees that they have been potentially exposed to Covid-19 within the previous 14 days and they have been advised to self-quarantine, and that employee has been on a project site at the U of SC campus within that same 14 day period the employer must notify

the U of SC Project Manager and advise what days their employee was on site.

- x. If any individual who has been on the project jobsite is found to have tested positive for Covid-19, the construction site will be shut down immediately for thorough cleaning by the General Contractor.



Project Name: Electrical Site Package – Facilities Relocation – Building Systems Renovation Project  
Project Number: H27-Z400-2

**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 \_\_\_\_\_

# SE-355 PERFORMANCE BOND

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

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

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

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

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

Name: University of South Carolina  
Address: 1300 Pickens St  
Columbia, SC 29208

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

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

State Project Name: Electrical Site Package – Facilities Relocation – Building Systems Renovation Project

State Project Number: H27-Z400-2

Brief Description of Awarded Work: Installation of a new Electrical Service to the 1206 Flora Mill along with associated electrical panels and wiring at the existing building.

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

Name: Goodwyn, Mills & Cawood (GMC) / Marc Warren, AIA  
Address: 1219 Wayne Street  
Columbia, SC 29201

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

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

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

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

**CONTRACTOR**

**SURETY**

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

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

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

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

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

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

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

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

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

**SE-355****PERFORMANCE BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

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

# SE-357 LABOR & MATERIAL PAYMENT BOND

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

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

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

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

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

Name: University of South Carolina  
Address: 1300 Pickens St  
Columbia, SC 29208

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

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

State Project Name: Electrical Site Package – Facilities Relocation – Building Systems Renovation Project  
State Project Number: H27-Z400-2

Brief Description of Awarded Work: Installation of a new Electrical Service to the 1206 Flora Mill along with associated electrical panels and wiring at the existing building.

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

Name: Goodwyn, Mills & Cawood (GMC) / Marc Warren, AIA  
Address: 1219 Wayne Street  
Columbia, SC 29201

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

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

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

**CONTRACTOR**

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

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

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

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

**SURETY**

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

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

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

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

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

**SE-357****LABOR & 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.

**SE-380**

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

**CHANGE ORDER TO DESIGN-BID-BUILD CONSTRUCTION CONTRACT**

**AGENCY:** University of South Carolina

**PROJECT NAME:** Electrical Site Package- Facilities Relocation- Building Systems Renovation Project

**PROJECT NUMBER:** H27-Z400-2

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

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

**ADJUSTMENTS IN THE CONTRACT SUM:**

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

**ADJUSTMENTS IN THE CONTRACT TIME:**

1. Original Substantial Completion Date:		
2. Sum of previously approved increases and decreases in Days:		Days
3. Change in Days for this Change Order		Days
4. Total Number of Days added to this Contract including this Change Order		0 Days
5. New Substantial Completion Date:		

**CONTRACTOR ACCEPTANCE:**

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

**Print Name of Representative:** \_\_\_\_\_

**A/E RECOMMENDATION FOR ACCEPTANCE:**

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

**Print Name or Representative:** \_\_\_\_\_

**AGENCY ACCEPTANCE AND CERTIFICATION:**

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

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

**Print Name of Representative:** \_\_\_\_\_

Change is within Agency Construction Contract Change Order Certification of: \$ \_\_\_\_\_ Yes  No

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

**SUBMIT THE FOLLOWING TO OSE**

1. SE-380, fully completed and signed by the Contractor, A/E and Agency;
2. Detailed back-up information, with OH&P shown, from the Contractor/Subcontractor(s) that justifies the costs and schedule changes shown.
3. If any item exceeds Agency certification, OSE will approved the SE-380 and return to Agency.

DOCUMENT 00 31 26 - EXISTING HAZARDOUS MATERIAL INFORMATION

1.1 EXISTING HAZARDOUS MATERIAL INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.
- B. An existing Asbestos Containing Material Report (dated March 19, 2018) and a Lead-Based Paint Report (dated April 4, 2018) have been prepared for the existing facility, prepared by F&ME Consultants. Each report is hereby attached.
- C. Hazardous Material Abatement:
  - 1. All associated abatement shall be done by the University of South Carolina prior to the commence of construction associated with the scope of work described herein.
  - 2. The contractor has a responsibility to notify the Owner and the Architect if any existing materials encountered as part of work associated with this project are suspected to be hazardous prior to disturbing any existing conditions.
- D. Related Requirements:
  - 1. AIA Document A701 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
  - 2. Section 024116 "Structure Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.

END OF DOCUMENT 00 31 26



# **ASBESTOS CONTAINING MATERIAL INVESTIGATION REPORT**

**UNIVERSITY OF SOUTH CAROLINA  
FORMER SCE&G COMPOUND  
MAIN 2-STORY BUILDING (BUILDING 1)  
1206 FLORA STREET  
COLUMBIA, SOUTH CAROLINA**

## **PREPARED FOR:**



**UNIVERSITY OF  
SOUTH CAROLINA**

Mr. Christopher Geary  
University of South Carolina  
1300 Pickens Street  
Columbia, South Carolina 29201

## **PREPARED BY:**

F&ME Consultants  
1825 Blanding Street  
Columbia, South Carolina 29201

**March 29, 2018**

F&ME Project No.: E5700.190

# TABLE OF CONTENTS

<b>1.</b>	<b>Executive Summary .....</b>	<b>1</b>
<b>2.</b>	<b>Introduction.....</b>	<b>3</b>
<b>3.</b>	<b>Existing building Structure.....</b>	<b>3</b>
<b>4.</b>	<b>Field assessment.....</b>	<b>4</b>
4.1	Suspect Materials Encountered During Investigation .....	4
<b>5.</b>	<b>Assessment Results .....</b>	<b>6</b>
5.1	Homogeneous Area Locations Where ACM Was Identified.....	7
<b>6.</b>	<b>Recommendations .....</b>	<b>9</b>
	<b>APPENDICES.....</b>	<b>12</b>

Appendix A – Site Vicinity Map

Appendix B – General Building Plans

Appendix C – Sample Location Plans

Appendix D – Homogeneous Area Plans

Appendix E – Summary of Samples

Appendix F – Summary of Asbestos Containing Materials

Appendix G – Summary of Inspection

Appendix H – Physical Assessment Data Sheets

Appendix I – Laboratory Analysis Reports

Appendix J – Chain of Custody Forms

Appendix K – Personnel Certifications

Appendix L – Regulatory Summary

Appendix M – Abatement Project Forms

# 1. EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. This report should be reviewed in its entirety prior to making any decisions regarding this project.

F&ME Consultants Inc. (F&ME) has completed an Asbestos Containing Material (ACM) Investigation of multiple structures associated with the former SCE&G Compound (Site) located at 1206 Flora Street in Columbia, SC for the University of South Carolina (USC). This report is for the investigation of the main 2-story former mill structure (Building 1) found on the compound that fronts Flora Street. The investigation was performed in anticipation of planned renovations to both the interior and exterior of the building and was conducted in accordance with South Carolina Department of Health and Environmental Control (SCDHEC), United States Environmental Protection Agency (USEPA), National Emission Standards for Hazardous Air Pollutants (NESHAP), and Occupational Safety and Health Administration (OSHA) regulations requiring an ACM investigation prior to any demolition and/or renovation activities.

Per an agreed upon scope of work, F&ME performed this Investigation to identify ACM that may be encountered during the planned renovations, and to make recommendations regarding proper handling and disposal of any ACM found. The scope of work included a complete investigation of both the interior and exterior portions of the building, as well as sampling of the existing roof system. The initial field investigation was performed on March 13th through March 15th, 2018. A follow-up visit made for the purposes of delineating the locations of ACM materials was performed on March 26, 2018.

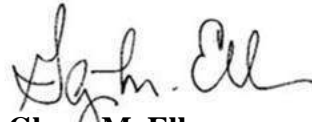
The ACM investigation uncovered multiple suspect materials within the interior and exterior of the building that may be impacted by the planned renovations. Of the suspect materials sampled and analyzed, laboratory results indicate that the following materials were found to be positive for asbestos content: **black mastic under various flooring materials (i.e. floor tile; carpeting etc.); black mastic on fiberglass HVAC duct wrap; TSI pipe insulation; TSI mudded elbows; residual TSI pipe insulation in floor penetrations (underside of second floor); felt at base of timber column and black and gray flashing mastics.**

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

Sincerely,  
F&ME CONSULTANTS



**Michael S. Mincey**  
Environmental Professional  
Asbestos Consultant/ Management Planner  
SCDHEC License No: MP-00161  
Expiration Date 01/29/2019



**Glynn M. Ellen**  
Environmental Manager  
Asbestos Consultant/ Management Planner  
SCDHEC License No: MP-20979  
Expiration Date 1/29/2019

## 2. INTRODUCTION

It is F&ME's understanding that renovations are in the planning stages for Building 1, and currently the scope of the renovations is undefined. It is also our understanding that the renovations will likely impact the entire structure, will impact both the interior and exterior of the building, and will potentially include the replacement of the existing roof system. Therefore, the scope of this ACM Investigation was to identify, assess and sample materials suspected of containing asbestos within the interior and exterior of the building, to include the roof. The initial field investigation was performed from March 13th through to March 15th, 2018, and a follow-up visit for the purpose of delineating ACM materials was performed on March 26, 2018.

The results, conclusions and recommendations from this 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. This report has been prepared exclusively for USC and shall not be disseminated in whole or part to other parties without prior consent from USC or F&ME Consultants, Inc. No other environmental issues were addressed as part of this report.

## 3. EXISTING BUILDING STRUCTURE

Building 1 is an approximate 65,000 square foot, two-story structure located at 1206 Flora Street, in Columbia SC. The structure was originally the location for the Capital City Mills and in recent years was owned and operated by SCE&G. USC took possession of the property in March of 2018. The original building construction is believed to have occurred near the turn of the century. A historic document found online indicated Capital City Mills being incorporated in 1900.



*Photo 1. University of South Carolina, former SCE&G Compound, Main Building (Building 1) located at 1206 Flora Street, Columbia SC.*

The original 2-story building is a masonry brick and concrete structure with wood columns and beams throughout. There have been alterations or renovations made to the structure over its history that include more current construction. Two (2) all metal additions were noted during the investigation on northwest and southwest corners of the building. It appeared that an earlier renovation was performed to add the stairwells at the front entrance and northwest corner of the building. The stairwells were added before the metal addition on the northwest corner of the building. It also appears that the entire second floor was renovated and all new finished were installed at some point in time. Based on the condition of the building materials, the two (2) areas

with offices found on the first-floor level were likely renovated earlier than the renovations on the second floor of the building. The roof system for the main structure consists of a commercial TPO membrane roof and flashing. The additions at the northwest and southwest corners have metal roof systems.

The interior spaces of the building consisted of drywall, plaster, wood, masonry block and brick walls, carpet and various 12" x 12" floor tiles over concrete and/or wood flooring, and suspended drop ceiling system. The main warehouse area (Room 100) on the first floor is opened to the underside of the floor of the second-floor level. See Appendix A – Site Vicinity Map, for the location of the structure. See Appendix B –General Building Plans, for a layout of the building.

## 4. FIELD ASSESSMENT

The purpose of this Investigation was to locate, sample and record the physical characteristics of suspect ACM associated with the interior and exterior areas of the subject building, and the roof in anticipation of planned renovation activities. During the field assessment, all interior and exterior building components were visually inspected for suspect ACM and consisted of a review of wall and ceiling systems, HVAC mechanical systems, stairwells, thermal systems insulation (TSI) utilized on mechanical systems piping, pipe fittings and ductwork, floor and wall finishes, windows and glass store fronts as well as the roofing system. Once reviewed, the quantities and physical condition of suspect materials were assessed, and bulk samples of these materials were submitted for laboratory analysis.

F&ME's approach to the investigation considered the varying construction dates and the evidence of past renovation activities over the years. Common or homogeneous suspect materials were sampled independently of each other and materials in each of these areas of the building were sampled independently. Based on the age of the subject structure, some building materials such as elevator doors and brake shoes, etc., could contain asbestos. Due to the inaccessibility of these types of materials, the destructive nature of bulk sampling, and/ or the potential for voiding product warranties and/ or fire ratings, these suspect materials were not sampled during this investigation. It is important to note that additional investigations of these building systems may be required if they are to be impacted by planned renovation activities.

During the investigation, a single run of TSI pipe insulation was found at the top of a wall in the back area toward the southwest corner of the building. In addition, two (2) mudded fittings were found in the northwest corner of Room 100. No other actual pipe insulation or mudded fittings of this type were found during the field investigation. All other TSI on piping and ductwork identified during the field investigation was non-suspect fiberglass with various suspect mastics on the seams. Approximately 40 floor penetrations from an older mechanical system in the building were noted when looking at the underside of the second floor from Room 100. These floor penetrations had a thin sheet metal cap over most of the openings. A review of these penetrations found residual TSI on the metal covers and inside the penetrations that tested positive. Should the renovations to

the building impact these penetrations they will require cleaning to remove the residual TSI by a licensed abatement contractor.

It should be noted, due to the age of the structure, with the TSI pipe insulation and mudded elbows found in the building, as well as the residual TSI found in multiple wall and floor penetrations, that remnants of older mechanical systems may be uncovered during the planned renovations. Special consideration should be given during the design development phase of the project to investigate closed wall, floor and ceiling cavities, as well as closed chases that may be uncovered. In addition, there is an indication that there may be a crawl space under a portion of the original building. No means of accessing this crawl space was found during the field investigation. Should an access point be found during the planned renovations, or if one is made to gain access to this space, it should be investigated prior to accessing, to verify whether suspect materials are present and to determine if it is safe for access.

## 4.1 Suspect Materials

The purpose of this investigation was to locate, sample and record the physical characteristics of suspect ACM associated with the interior and exterior portions of the subject structure. Therefore, the quantities and physical condition of suspect materials were assessed, and bulk samples of these materials were submitted for laboratory analysis. The following suspect materials and approximate amounts were identified during this ACM Investigation:

- Drywall and joint compound (>5,000 ft<sup>2</sup>)
- 2' x 2' and 2' x 4' ceiling tiles (~32,600 ft<sup>2</sup>)
- Multiple 12" x 12" vinyl floor tiles and associated mastic (~2,000 ft<sup>2</sup>)
- Multiple baseboard adhesives (~3,000 LF)
- Carpet adhesive (~30,000 ft<sup>2</sup>)
- White floor leveling compound (~600 ft<sup>2</sup>)
- Tan sink undercoating (2 sinks)
- Mastics on HVAC duct wrap (~400 ft<sup>2</sup>)
- Plaster (~3,000 ft<sup>2</sup>)
- Brown window caulk (~200 LF)
- TSI pipe insulation (15 LF)
- Textured wall surfacing material (<1,000 ft<sup>2</sup>)
- Red fire stop (100 ft<sup>2</sup>)
- Mudded elbows (2 elbows)
- Various floor underfelts (88,000 ft<sup>2</sup>)
- Old floor and wall penetration TSI residue (~25 ft<sup>2</sup>)
- Timber column felt (~5 ft<sup>2</sup>)
- Expansion joint material (~1,000 LF)
- Expansion joint felts (~2,000 LF)



- Fire door material (5 Doors)
- Stucco wall fill (~100 ft<sup>2</sup>)
- Stair tread adhesive (~200 ft<sup>2</sup>)
- Interior door caulk (~10 ft<sup>2</sup>)
- Exterior door/window caulk (~25 ft<sup>2</sup>)
- White window caulk (~5 LF)
- Textured Stucco (Exterior) (~1,500 ft<sup>2</sup>)
- Built-up roofing materials (~29,000 ft<sup>2</sup>)
- Flashing (~300 ft<sup>2</sup>)
- White roof caulk (~100 ft<sup>2</sup>)
- Gray roof surface coating (~1,500 ft<sup>2</sup>)
- Gray flashing mastic (~90 LF)
- Black roof patch (~10 ft<sup>2</sup>)
- Red roof patch (~5 ft<sup>2</sup>)
- Black flashing mastic (~50 ft<sup>2</sup>)
- White flashing mastic (~10 LF)
- Elevator doors (3 Doors)
- Elevator brake shoes (Unknown)

Random samples of the suspect materials were collected for laboratory analysis, and their physical characteristics were recorded. Building materials such as concrete, metal, wood, brick, carpet, etc., were not considered suspect ACM. 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 May 27, 2011. See Appendix E – Summary of Samples, for complete list of all samples taken. See Appendix L–SCDHEC Regulation Summary. Proper sampling and chain-of-custody protocols were followed to ensure appropriate handling and delivery of samples to the analytical laboratory. Refer to Appendix K –Personnel Certifications, for SCDHEC qualifications of Investigation personnel, and Appendix J– Chain of Custody Forms, for documentation of proper handling and delivery of samples.

## 5. ASSESSMENT RESULTS

A total of two hundred twenty-three (223) samples were collected from the subject building. A “*first positive stop*” protocol was implemented for this sampling. This protocol establishes that if the first sample of a material tested positive for asbestos content, subsequent samples were not to be analyzed, and would be considered positive as well. Therefore, due to multiple layers of some materials sampled, and the implementation of a “*first positive stop*” protocol, two hundred forty-two (242) samples were analyzed by PLM and sixty-one (61) were TEM-confirmed. Based on the sample results, thirty-seven (37) samples returned positive results for asbestos content. See

Appendix C –Sample Location Plan, for the various sample locations and Appendix F –Summary of Asbestos Containing Materials, for the materials determined to be ACM.

Appropriate sampling and chain-of-custody protocols were followed to ensure proper handling and delivery of samples to the analytical laboratory. Appendix I – Bulk Asbestos Analytical Report and Appendix J – Laboratory Chain of Custody were provided to show laboratory documentation of the analytical results. Appendix K – Personnel Certification, provides the qualifications for the F&ME Asbestos Inspectors.

## 5.1 Homogeneous Area Locations Where ACM Was Identified

The following are photographs, descriptions, and approximate quantities of the ACM identified during the Investigation. Guidance is also provided for the proper handling and disposition if the materials in these areas are to be removed. See Appendix D – Homogeneous Area Plans, for homogeneous sampling areas for the various ACM identified below.

**HA-1 – Black mastic under various floor finishes (~3,600 ft<sup>2</sup>).** ACM black mastic is noted under multiple flooring finishes (i.e. non-ACM floor tiles; white leveling compound; residual under carpet) in various areas throughout the 1<sup>st</sup> and 2<sup>nd</sup> floors of the building. Overall, this material is in a non-friable and intact condition. This material will must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-2 - Black mastic on HVAC duct wrap (~250 ft<sup>2</sup>).** Asbestos-containing black mastic on HVAC duct wrap was found above the drop ceiling in multiple areas on the 1<sup>st</sup> and 2<sup>nd</sup> floors. Overall this material was found to be in a good, intact non-friable condition with no damage being noted during the investigation. This material will must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-3 – TSI pipe insulation (15 LF piping/40 SF penetrations).** One (1) run of asbestos-containing TSI pipe insulation was found in the corner of H102 on the first floor of the building. No other suspect pipe insulation was found during the field investigation. Residual TSI was noted on several penetrations in the walls and ceiling of Room 100. The TSI pipe insulation was in an intact but friable condition with some localized damage being noted. Some TSI debris was noted on the floor in the area below the damage area. This material must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-4 – Mudded elbows (2 elbows)** The two mudded elbows were found in the north west corner of Room 100 on the 1<sup>st</sup> floor. No other mudded elbows were identified during the field investigation. This material is in an intact but friable condition with only minor localized damage. This material must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-5 – Timber column felt (5 ft<sup>2</sup>)** Asbestos-containing timber column felt was found on the two timber support columns in Room 111 on the 1<sup>st</sup> floor. Review of other columns throughout the build showed this condition was localized in this area and metal pedestals were the interface of the columns with the concrete slab. Overall, this material was in an intact and non-friable condition. If it is anticipated that the renovations will impact this material, it must be removed, handled and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities that will impact it.



**HA-6 – Gray flashing mastic (90 SF)** Asbestos-containing gray mastic was found on flashing at the interface of the exterior wall of the original structure and the metal roof of the all metal addition (Room 110) found on the northwest corner of the building on the metal roof. This material was found in good, intact non-friable condition with no damage being noted. If the planned renovation activities will impact this material it must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-7 – Black flashing mastic (50 SF)** Asbestos-containing black mastic was found on flashing at the interface of the exterior wall of the original structure and the metal roof above the rear-loading dock. This material is in good, intact non-friable condition. This material must be removed and disposed of as ACM by a licensed abatement contractor prior to the beginning of renovation activities.



**HA-8 – Elevator doors/Brake pads (1 elevator, 3 doors)** Asbestos-containing insulation can be found in the interior cavity of elevator doors, and pads associated with the braking systems for elevators have been known to contain asbestos in older elevators. Due to the destructive methods necessary to collect samples of these types of building components, these materials were not sampled as part of this investigation and they are assumed positive until samples can be collected and the materials proven negative by laboratory analysis. These materials, if found to be ACM must be removed and disposed of by a licensed abatement contractor prior to the beginning of renovation activities.



## 6. RECOMMENDATIONS

The results, conclusions, and recommendations of 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 may have occurred after this inspection.

It is our understanding that this investigation was conducted in anticipation of planned renovations to the structure. For this reason, ACM identified during this investigation must be abated prior to the commencement of renovation activities that will impact them. In addition, TSI may be found in closed wall and floor cavities as well as closed chases. If renovation activities should uncover any hidden TSI, the contractor is to stop work immediately, cordon off the area and notify USC Hazmat or F&ME Consultants.

All ACM identified during this Investigation must be abated prior to the commencement of renovation activities, where ACM will, or may potentially, be impacted. Due to the age of the building, along with the renovations and additions added over the years, there is an increase in the probability that suspect ACM may be found hidden in wall cavities. If any concealed and/or inaccessible ACM are encountered during abatement and/ or demolition activities, the affected contractor(s) must stop work, take appropriate actions, and notify the Owner or the Owner's Environmental consultant for an appropriate response action. The SCDHEC must be notified in the event any additional ACM is discovered, as well as changes in the condition of identified ACM. Appendix M – Abatement Project Forms, are provided for more information. See Appendix G – Summary of Inspection and Appendix H –Physical Assessment Data Sheets, for description and condition of ACM materials.

All abatement work must be performed by an AHERA-certified and SCDHEC-licensed Abatement Contractor. This work must be performed in accordance with all applicable regulations and guidelines, such as notification and air monitoring requirements. All asbestos waste, including contaminated building materials (i.e. original window frames etc.), must be deposited in a landfill permitted by the SCDHEC for receiving ACM.

The SCDHEC's Standards of Performance for Asbestos Projects (R 61-86.1) includes requirements for abatement projects regarding notifications, project design, air sampling and analysis, etc. For informational purposes, some of these requirements are summarized below:

*Notifications.* Written notification (SCDHEC Form 3430) must be submitted to SCDHEC at least two (2) calendar weeks prior to initiation of abatement activities for renovation/demolition projects. 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 must be posted on the job site during abatement work. 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.

*Project Design.* Furthermore, abatement projects that will remove more than 3,000 square feet, 1,500 linear feet, or 656 cubic feet of regulated asbestos-containing materials are required to have a licensed and certified Abatement Project Designer develop a project design prior to the commencement of any abatement activities. The Abatement Contractor is required to adhere to the design, which must address all information as directed by the regulations.

*Air Monitoring.* 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.

We sincerely appreciate the opportunity to be of service to USC, in this matter. If you have any questions regarding the information presented herein, please contact our office at (803) 254-4540.

## APPENDICES

Appendix A – Site Vicinity Map

Appendix B – General Building Plans

Appendix C – Sample Location Plans

Appendix D – Homogeneous Area Plans

Appendix E – Summary of Samples

Appendix F – Summary of Asbestos Containing Materials

Appendix G – Summary of Inspection

Appendix H – Physical Assessment Data Sheets

Appendix I – Laboratory Analysis Reports

Appendix J – Chain of Custody Forms

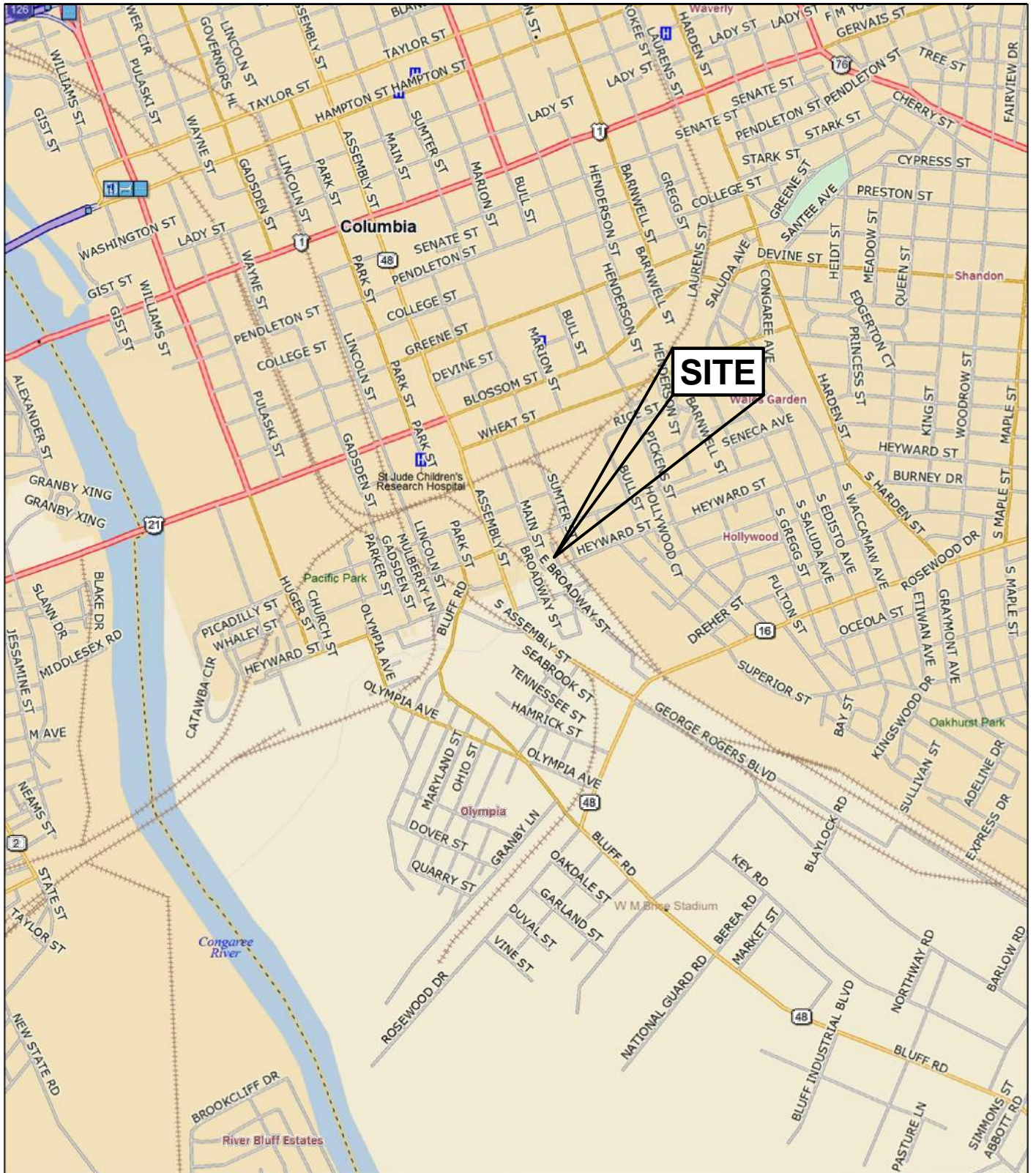
Appendix K – Personnel Certifications

Appendix L – Regulatory Summary

Appendix M – Abatement Project Forms



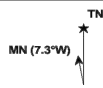
**Appendix A**  
**Site Vicinity Map**



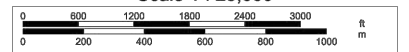
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Scale 1 : 25,000



1" = 2,083.3 ft Data Zoom 13-0

FIGURE  
NUMBER:

1

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PROJECT NUMBER:

E5700.190

**Asbestos Containing Materials Investigation  
Former SCE&G Complex  
1206 Flora Street, Columbia, SC 29201  
Appendix A - Site Location Plan**

Prepared for:  
Facilities Planning and Construction  
743 Greene Street  
Columbia, SC 29208

**F&ME  
CONSULTANTS**  
3112 Devine Street  
Columbia, SC 29205

ORIGINAL:  
March 23, 2018

REVISIONS:

1

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3

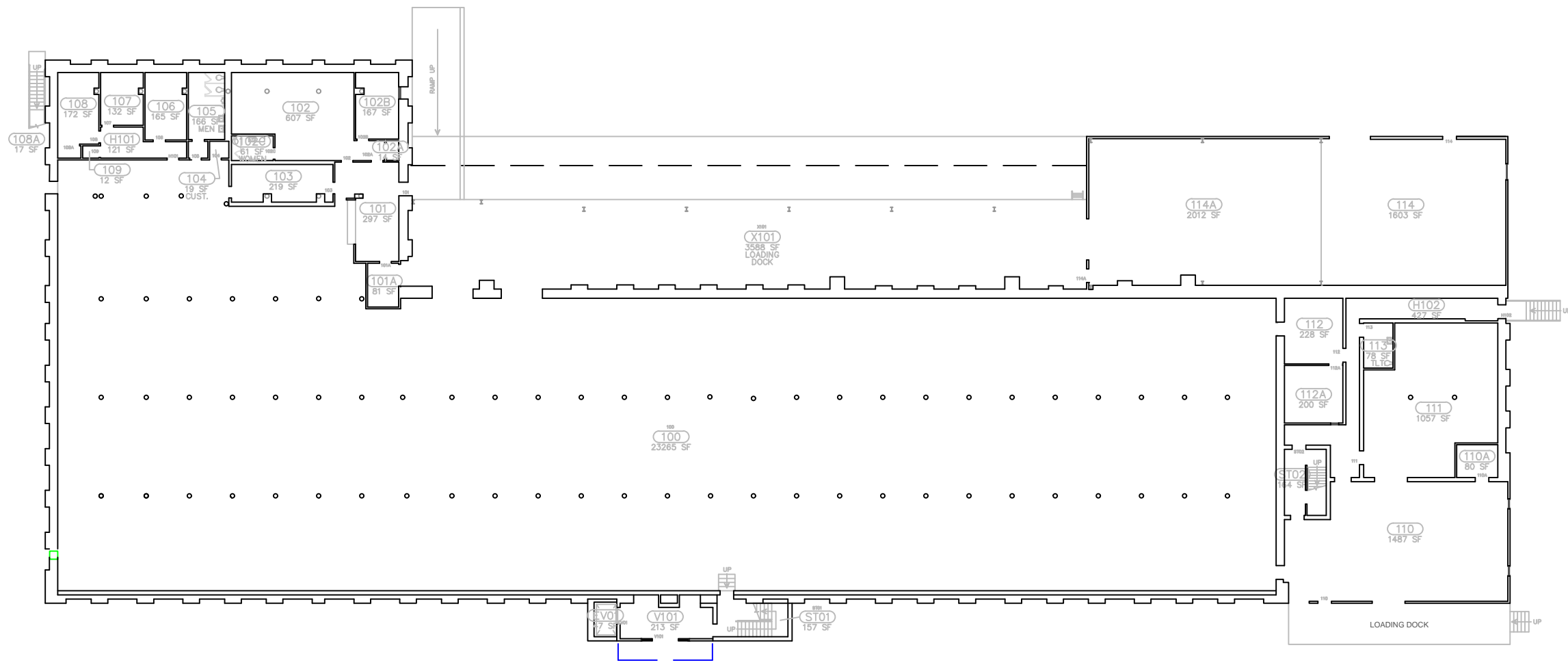
SCALE  
As Shown

DRWN. BY: CTC  
CHKD. BY: MSM  
APPR. BY: GME

NOTES:

## **Appendix B**

### **General Building Plans**





**FIRST FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

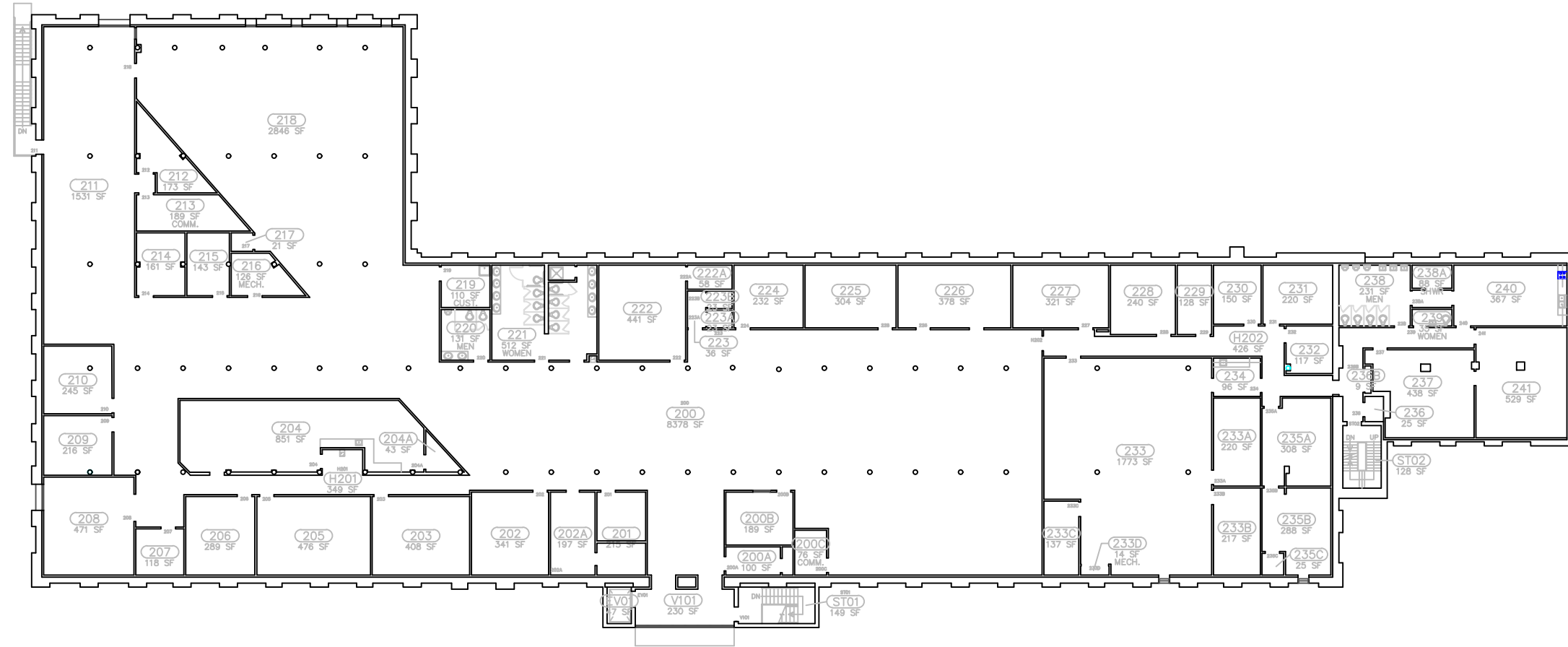
DRWN. BY: MSM	APPROVED BY: GME
CHKD. BY: MSM	DATE: March 23, 2018
REVISIONS:	SCALE: 1" = 16'
1	
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NOTES:	

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**Asbestos Containing Materials Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix B - General Building Plan**  
 Prepared for:  
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 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**2**




1  
A2
**SECOND FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

ORIGINAL:	March 23, 2018
REVISIONS:	
1	
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3	
SCALE	1" = 16'

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**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix B - General Building Plan**  
 Prepared for:  
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 Columbia, SC 29208

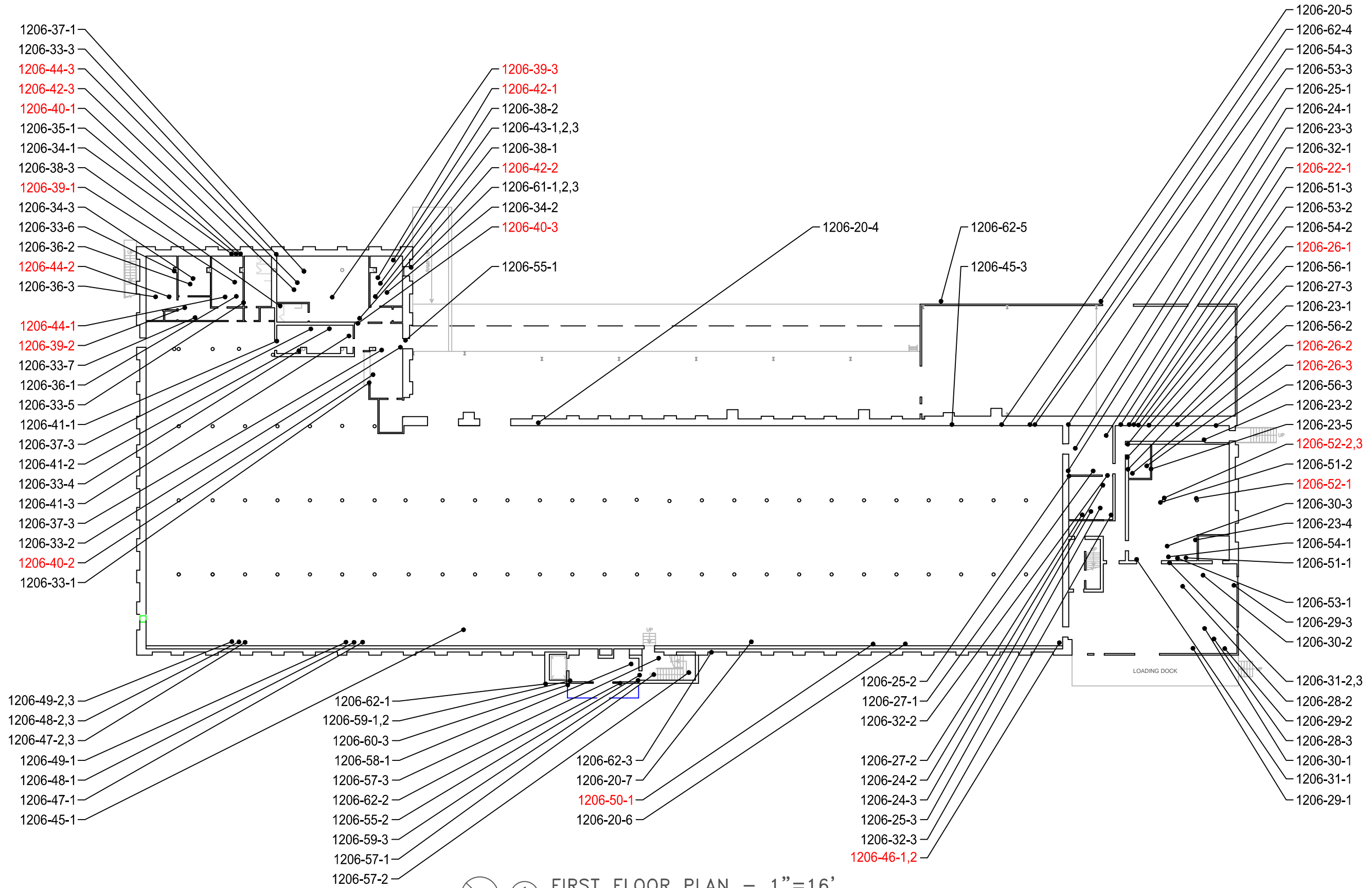
F&ME CONSULTANTS  
 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**3**

## Appendix C

### Sample Location Plans







ORIGINAL: March 23, 2018	DRAWN BY: MSM CHECKED BY: MSM APPROVED BY: GME	NOTES: 1 2 3	SCALE: 1" = 16'
-----------------------------	--	-----------------------	--------------------

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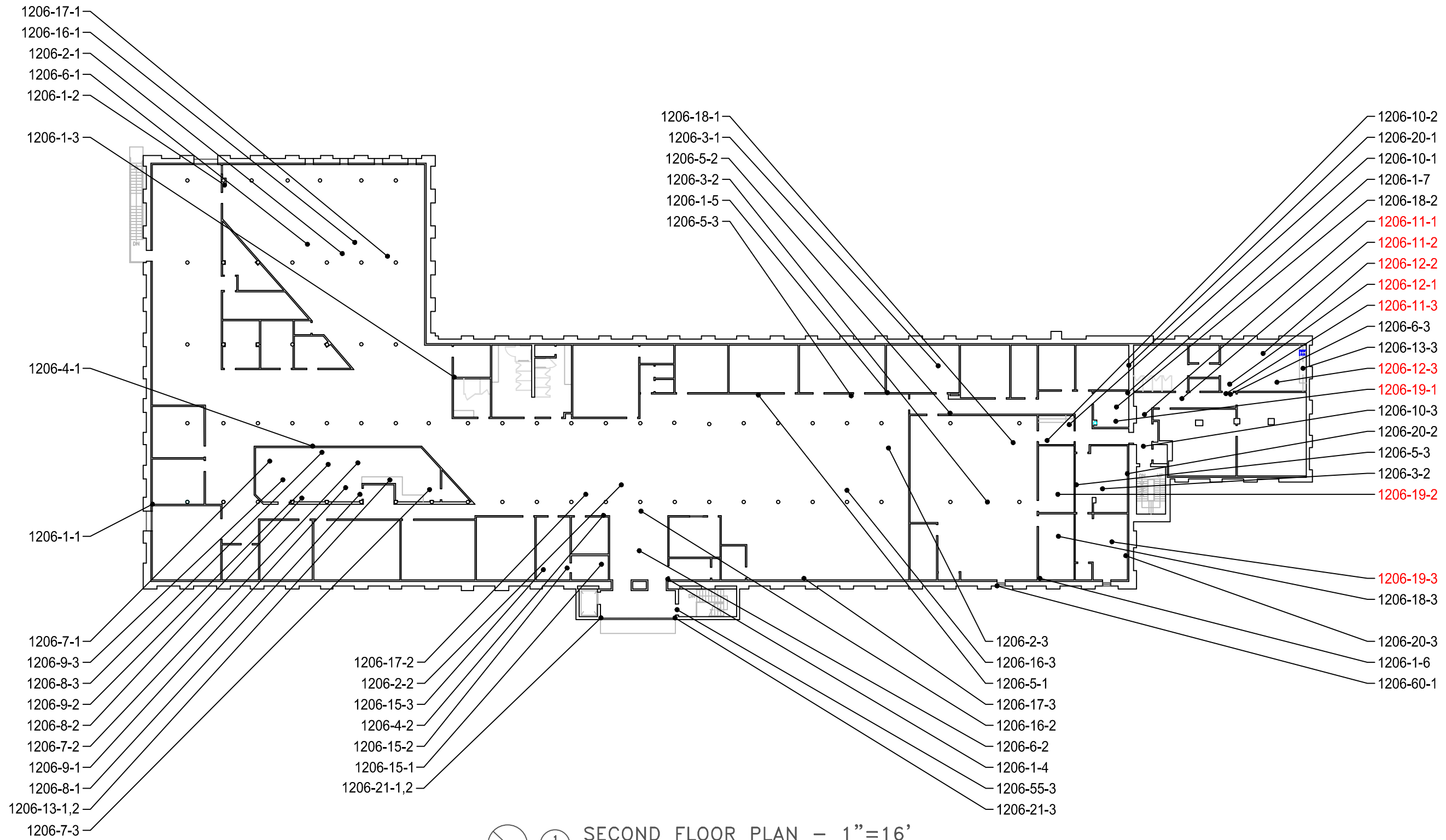
Prepared for:  
**Asbestos Containing Materials Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix C - Sample Location Plan**

Prepared by:  
 Facilities Planning and Construction  
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 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**4**







**SECOND FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

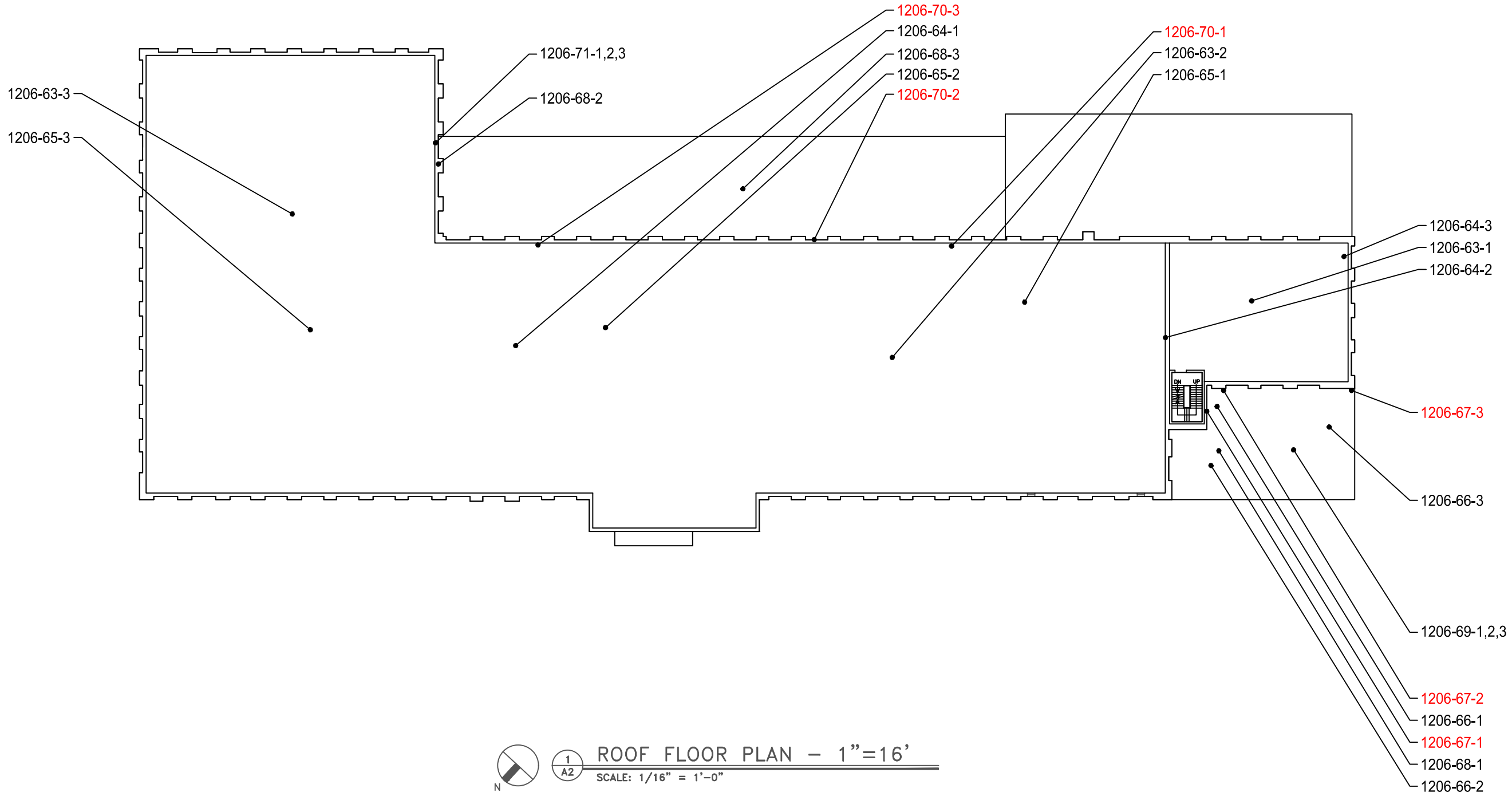
ORIGINAL:	March 23, 2018
REVISIONS:	
1	
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3	
NOTES:	
SCALE:	1" = 16'

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**Asbestos Containing Materials Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix C - Sample Location Plan**  
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 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**5**





**ROOF FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

DRWN BY: CTC	ORIGINAL:
CHGD BY: MSB	March 23, 2018
APPR BY: GME	REVISIONS:
NOTES:	1
	2
	3
	SCALE
	1" = 16'

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**Asbestos Containing Materials Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix C - Sample Location Plan**  
 Prepared for:  
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 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**6**

## Appendix D

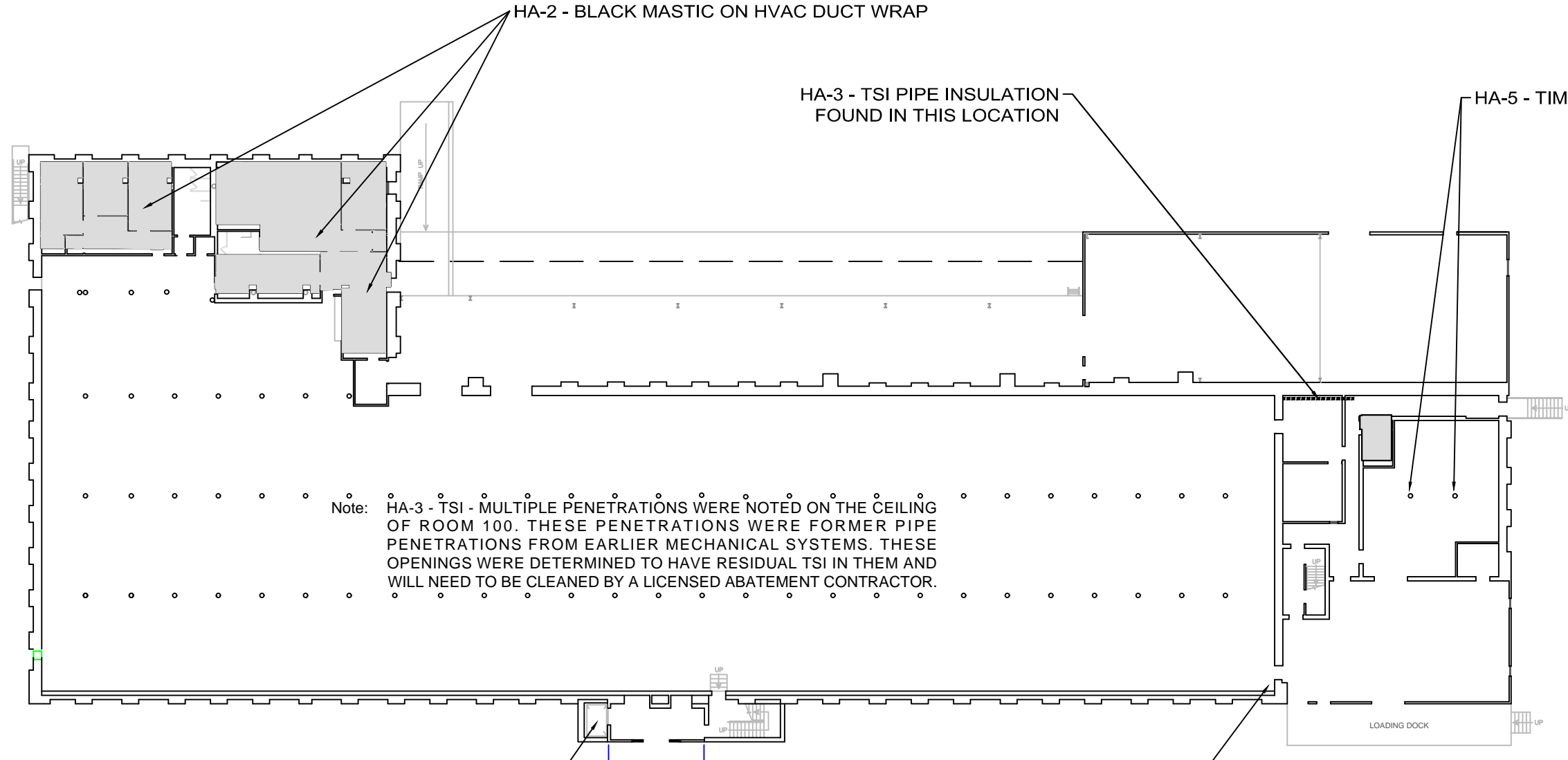
### Homogeneous Area Plans

HA-1 - BLACK MASTIC UNDER MULTIPLE FLOORING COMPONENTS (I.E. CARPET, NON-ACM FLOOR TILE, WHITE FLOOR LEVELER)

HA-2 - BLACK MASTIC ON HVAC DUCT WRAP

HA-3 - TSI PIPE INSULATION FOUND IN THIS LOCATION

HA-5 - TIMBER COLUMN FELT



Note: HA-3 - TSI - MULTIPLE PENETRATIONS WERE NOTED ON THE CEILING OF ROOM 100. THESE PENETRATIONS WERE FORMER PIPE PENETRATIONS FROM EARLIER MECHANICAL SYSTEMS. THESE OPENINGS WERE DETERMINED TO HAVE RESIDUAL TSI IN THEM AND WILL NEED TO BE CLEANED BY A LICENSED ABATEMENT CONTRACTOR.

HA-8 - ELEVATOR DOORS AND BRAKE SHOES (ASSUMED POSITIVE)

HA-4 - MUDDIED ELBOWS FOUND IN THIS LOCATION



1  
A1 FIRST FLOOR PLAN - 1"=16'  
SCALE: 1/16" = 1'-0"

DRWN BY: CTC	CHKD BY: MSM
APPR BY: GME	NOTES:
REVISIONS:	SCALE: 1"=16'
1	
2	
3	


ORIGINAL: March 23, 2018

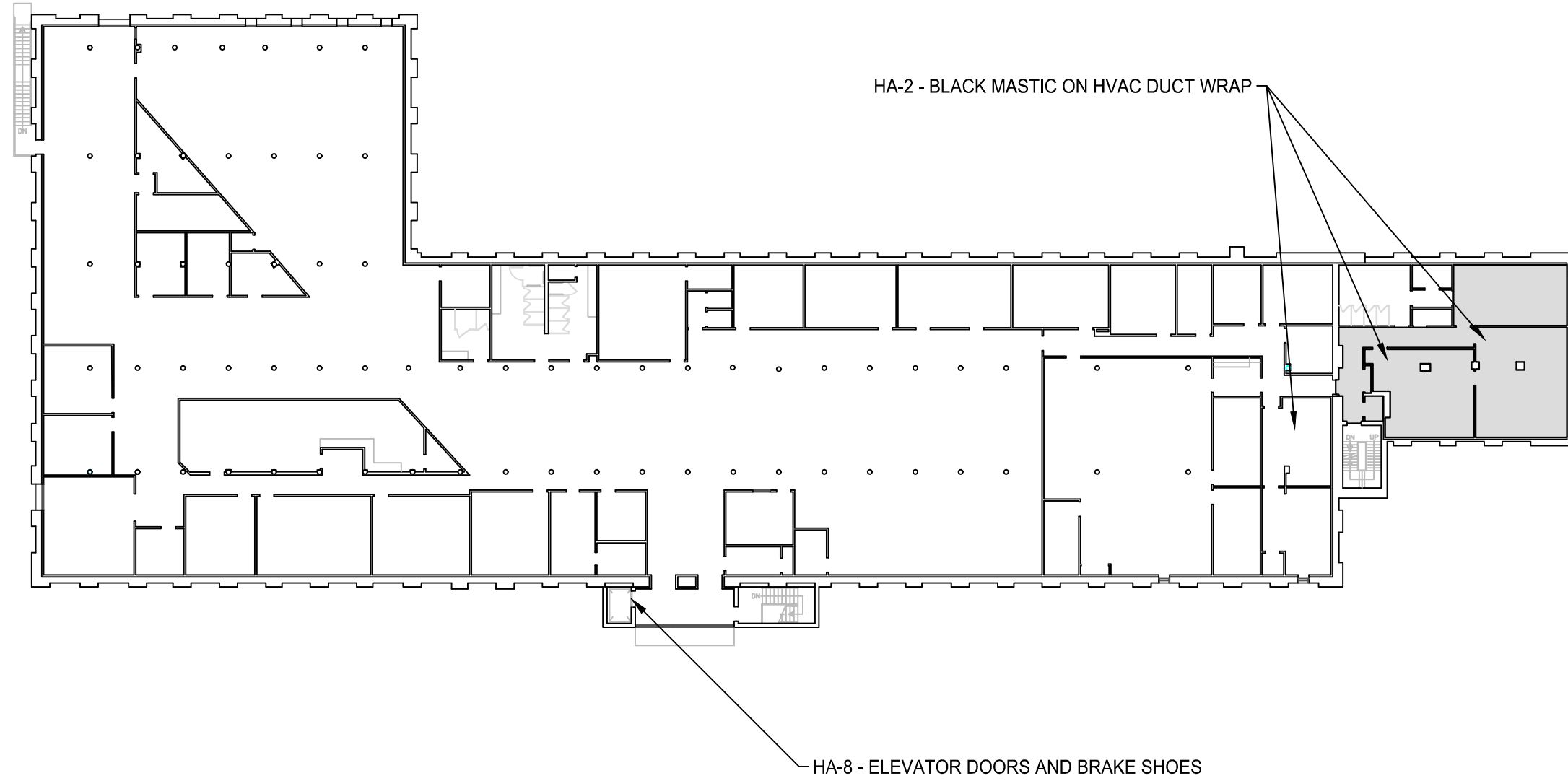
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Asbestos Containing Materials Investigation  
 Former SCE&G Complex - Main 2-Story Structure  
 1206 Flora Street, Columbia, SC 29201  
**Appendix D - Homogeneous Area Plan**  
 Prepared for:  
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 743 Greene Street  
 Columbia, SC 29208

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 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**7**


 HA-1 - BLACK MASTIC UNDER MULTIPLE FLOORING COMPONENTS  
 (I.E. CARPET, NON-ACM FLOOR TILE, WHITE FLOOR LEVELER)





**SECOND FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

DRWN BY: CTC
CHKD BY: MSM
APPR BY: GME
NOTES:

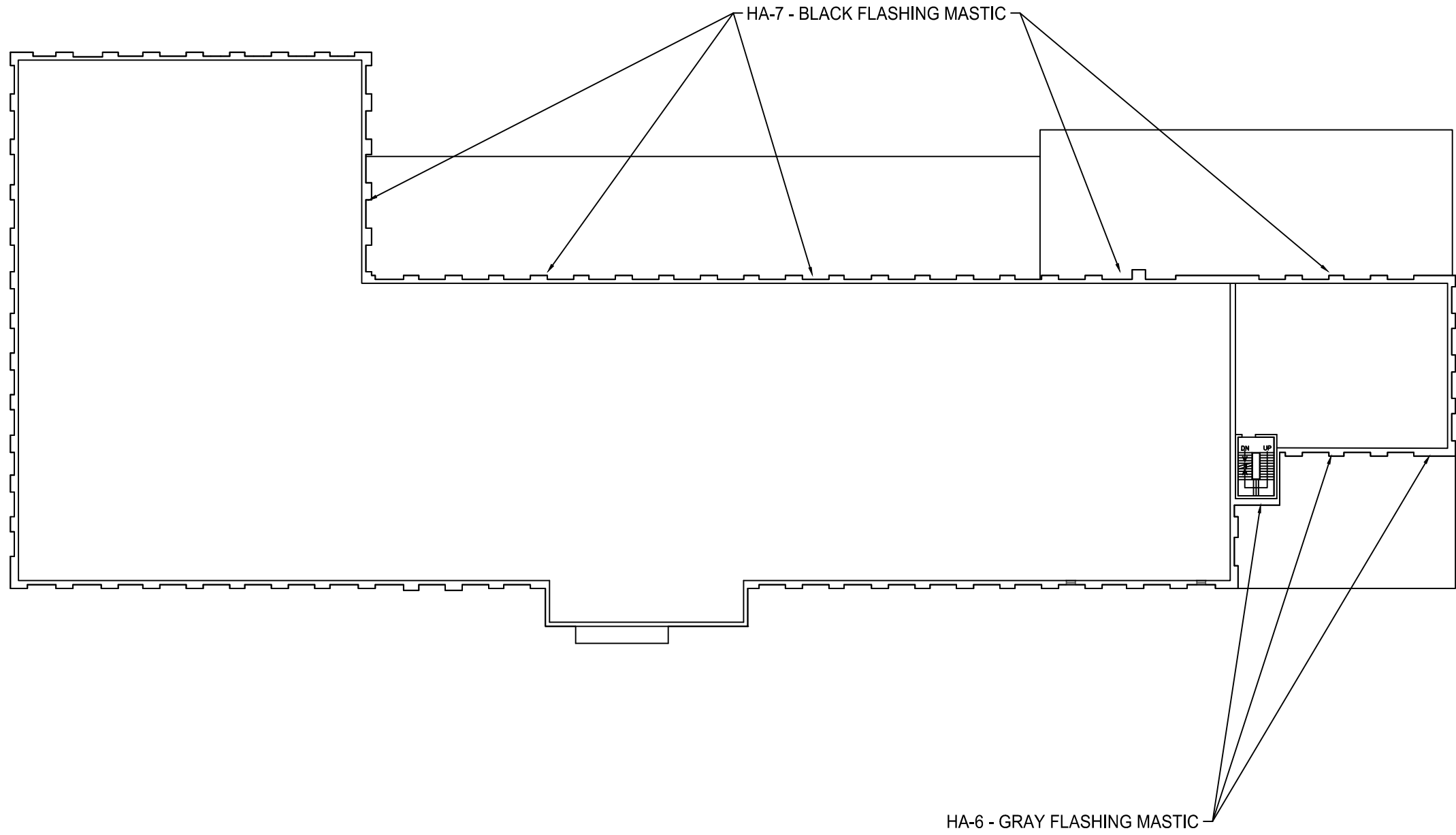
ORIGINAL: March 23, 2018
REVISIONS:
1
2
3
SCALE 1" = 16'



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Asbestos Containing Materials Investigation  
 Former SCE&G Complex - Main 2-Story Structure  
 1206 Flora Street, Columbia, SC 29201  
Appendix D - Homogeneous Area Plan  
 Prepared for:  
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 Columbia, SC 29208

F&ME CONSULTANTS  
 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**08**





**ROOF FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

ORIGINAL: March 23, 2018	DRAWN BY: CTC CHECKED BY: MSM APPR. BY: GME	REVISIONS: 1 _____ 2 _____ 3 _____	NOTES: _____ _____ _____	SCALE: 1/8" = 1.0'
<b>F&amp;ME CONSULTANTS</b> GEOTECHNICAL - ENVIRONMENTAL - MATERIALS 3112 Devine Street COLUMBIA, SC 29205				
<b>Asbestos Containing Materials Investigation</b> <b>Former SCE&amp;G Complex - Main 2-Story Structure</b> 1206 Flora Street, Columbia, SC 29201 <b>Appendix D - Homogeneous Area Plan</b> Prepared for: Facilities Planning and Construction 743 Greene Street Columbia, SC 29208				
F&ME CONSULTANTS PROJECT NUMBER:		<b>E5700.190</b>		
FIGURE NUMBER:		<b>9</b>		

## Appendix E

### Summary of Samples



## Appendix E: Summary of Samples

Sample ID	Description
1206-1-1	Drywall/Joint Compound
1206-1-2	Drywall/Joint Compound
1206-1-3	Drywall/Joint Compound
1206-1-4	Drywall/Joint Compound
1206-1-5	Drywall/Joint Compound
1206-1-6	Drywall/Joint Compound
1206-1-7	Drywall/Joint Compound
1206-2-1	2' x 2' Heavy Textured Ceiling Tile
1206-2-2	2' x 2' Heavy Textured Ceiling Tile
1206-2-3	2' x 2' Heavy Textured Ceiling Tile
1206-3-1	2' x 4' Small Pinhole Ceiling Tile
1206-3-2	2' x 4' Small Pinhole Ceiling Tile
1206-3-3	2' x 4' Small Pinhole Ceiling Tile
1206-4-1	Cream Baseboard Adhesive
1206-4-2	Cream Baseboard Adhesive
1206-4-3	Cream Baseboard Adhesive
1206-5-1	Brown Baseboard Adhesive
1206-5-2	Brown Baseboard Adhesive
1206-5-3	Brown Baseboard Adhesive
1206-6-1	Carpet Adhesive

## Appendix E: Summary of Samples

1206-6-2	Carpet Adhesive
1206-6-3	Carpet Adhesive
1206-7-1	12" x 12" Gray Floor Tile/Mastic
1206-7-2	12" x 12" Gray Floor Tile/Mastic
1206-7-3	12" x 12" Gray Floor Tile/Mastic
1206-8-1	12" x 12" Blue Floor Tile/Mastic
1206-8-2	12" x 12" Blue Floor Tile/Mastic
1206-8-3	12" x 12" Blue Floor Tile/Mastic
1206-9-1	12" x 12" Red Floor Tile/Mastic
1206-9-2	12" x 12" Red Floor Tile/Mastic
1206-9-3	12" x 12" Red Floor Tile/Mastic
1206-10-1	12" x 12" Peach Floor Tile/Mastic
1206-10-2	12" x 12" Peach Floor Tile/Mastic
1206-10-3	12" x 12" Peach Floor Tile/Mastic
1206-11-1	White Leveling Compound
1206-11-2	White Leveling Compound
1206-11-3	White Leveling Compound
1206-12-1	12" x 12" Tan Floor Tile/Mastic
1206-12-2	12" x 12" Tan Floor Tile/Mastic
1206-12-3	12" x 12" Tan Floor Tile/Mastic
1206-13-1	Tan Sink Undercoating

## Appendix E: Summary of Samples

1206-13-2	Tan Sink Undercoating
1206-13-3	Tan Sink Undercoating
1206-14-1	12" x 12" Light Brown Floor Tile/Mastic
1206-14-2	12" x 12" Light Brown Floor Tile/Mastic
1206-14-3	12" x 12" Light Brown Floor Tile/Mastic
1206-15-1	12" x 12" Tan Streaked Floor Tile/Mastic
1206-15-2	12" x 12" Tan Streaked Floor Tile/Mastic
1206-15-3	12" x 12" Tan Streaked Floor Tile/Mastic
1206-16-1	Tan Mastic on HVAC Duct Wrap
1206-16-2	Tan Mastic on HVAC Duct Wrap
1206-16-3	Tan Mastic on HVAC Duct Wrap
1206-17-1	Gray Mastic on HVAC Duct Wrap
1206-17-2	Gray Mastic on HVAC Duct Wrap
1206-17-3	Gray Mastic on HVAC Duct Wrap
1206-18-1	White Mastic on HVAC Duct Wrap
1206-18-2	White Mastic on HVAC Duct Wrap
1206-18-3	White Mastic on HVAC Duct Wrap
1206-19-1	Black Mastic on HVAC Duct Wrap
1206-19-2	Black Mastic on HVAC Duct Wrap
1206-19-3	Black Mastic on HVAC Duct Wrap
1206-20-1	Plaster

## Appendix E: Summary of Samples

1206-20-2	Plaster
1206-20-3	Plaster
1206-20-4	Plaster
1206-20-5	Plaster
1206-21-1	Brown Window Caulk (Interior)
1206-21-2	Brown Window Caulk (Interior)
1206-21-3	Brown Window Caulk (Interior)
1206-22-1	TSI Pipe Insulation
1206-23-1	Drywall/Joint Compound
1206-23-2	Drywall/Joint Compound
1206-23-3	Drywall/Joint Compound
1206-23-4	Drywall/Joint Compound
1206-23-5	Drywall/Joint Compound
1206-24-1	2' x 2' Textured Ceiling Tiles
1206-24-2	2' x 2' Textured Ceiling Tiles
1206-24-3	2' x 2' Textured Ceiling Tiles
1206-25-1	12" x 12" Gray/Off-White Floor Tile/Mastic/Carpet Adhesive
1206-25-2	12" x 12" Gray/Off-White Floor Tile/Mastic/Carpet Adhesive
1206-25-3	12" x 12" Gray/Off-White Floor Tile/Mastic/Carpet Adhesive
1206-26-1	12" x 12" Blue Floor Tile/Mastic
1206-26-2	12" x 12" Blue Floor Tile/Mastic

## Appendix E: Summary of Samples

1206-26-3	12" x 12" Blue Floor Tile/Mastic
1206-27-1	Baseboard Adhesive
1206-27-2	Baseboard Adhesive
1206-27-3	Baseboard Adhesive
1206-28-1	2' x 2' Gypsum Ceiling Tiles
1206-28-2	2' x 2' Gypsum Ceiling Tiles
1206-28-3	2' x 2' Gypsum Ceiling Tiles
1206-29-1	12" x 12" Off-White Floor Tile/Mastic
1206-29-2	12" x 12" Off-White Floor Tile/Mastic
1206-29-3	12" x 12" Off-White Floor Tile/Mastic
1206-30-1	Gray Duct Mastic
1206-30-2	Gray Duct Mastic
1206-30-3	Gray Duct Mastic
1206-31-1	Textured Wall Surfacing Material
1206-31-2	Textured Wall Surfacing Material
1206-31-3	Textured Wall Surfacing Material
1206-32-1	Light Gray Duct Mastic
1206-32-2	Light Gray Duct Mastic
1206-32-3	Light Gray Duct Mastic
1206-33-1	Drywall/Joint Compound
1206-33-2	Drywall/Joint Compound

## Appendix E: Summary of Samples

1206-33-3	Drywall/Joint Compound
1206-33-4	Drywall/Joint Compound
1206-33-5	Drywall/Joint Compound
1206-33-6	Drywall/Joint Compound
1206-33-7	Drywall/Joint Compound
1206-34-1	Carpet Adhesive
1206-34-2	Carpet Adhesive
1206-34-3	Carpet Adhesive
1206-35-1	Baseboard Adhesive
1206-35-2	Baseboard Adhesive
1206-35-3	Baseboard Adhesive
1206-36-1	2' x 4' Textured Ceiling Tiles
1206-36-2	2' x 4' Textured Ceiling Tiles
1206-36-3	2' x 4' Textured Ceiling Tiles
1206-37-1	2' x 2' Rough Textured Ceiling Tiles
1206-37-2	2' x 2' Rough Textured Ceiling Tiles
1206-37-3	2' x 2' Textured Ceiling Tiles
1206-38-1	2' x 4' Rough Textured Ceiling Tiles
1206-38-2	2' x 4' Rough Textured Ceiling Tiles
1206-38-3	2' x 4' Rough Textured Ceiling Tiles
1206-39-1	Black Duct Mastic

## Appendix E: Summary of Samples

1206-39-2	Black Duct Mastic
1206-39-3	Black Duct Mastic
1206-40-1	12" x 12' Light Gray on Brown Floor Tile/Mastic
1206-40-2	12" x 12' Light Gray on Brown Floor Tile/Mastic
1206-40-3	12" x 12' Light Gray on Brown Floor Tile/Mastic
1206-41-1	12" x 12" Gray with White Floor Tile/Mastic
1206-41-2	12" x 12" Gray with White Floor Tile/Mastic
1206-41-3	12" x 12" Gray with White Floor Tile/Mastic
1206-42-1	12" x 12" Beige with Tan Floor Tile/Mastic
1206-42-2	12" x 12" Beige with Tan Floor Tile/Mastic
1206-42-3	12" x 12" Beige with Tan Floor Tile/Mastic
1206-43-1	12" x 12" White with Black Floor Tile/Mastic
1206-43-2	12" x 12" White with Black Floor Tile/Mastic
1206-43-3	12" x 12" White with Black Floor Tile/Mastic
1206-44-1	Residual Black Mastic
1206-44-2	Residual Black Mastic
1206-44-3	Residual Black Mastic
1206-45-1	Red Fire Stop
1206-45-2	Red Fire Stop
1206-45-3	Red Fire Stop
1206-46-1	Mudded Elbow



## Appendix E: Summary of Samples

1206-46-2	Mudded Elbow
1206-47-1	Old Floor Underfelt
1206-47-2	Old Floor Underfelt
1206-47-3	Old Floor Underfelt
1206-48-1	Newer Floor Underfelt
1206-48-2	Newer Floor Underfelt
1206-48-3	Newer Floor Underfelt
1206-49-1	Red Floor Underfelt
1206-49-2	Red Floor Underfelt
1206-49-3	Red Floor Underfelt
1206-50-1	Old Floor Penetration TSI
1206-51-1	Expansion Joint Material
1206-51-2	Expansion Joint Material
1206-51-3	Expansion Joint Material
1206-52-1	Timber Column Felt
1206-52-2	Timber Column Felt
1206-52-3	Timber Column Felt
1206-53-1	Black Expansion Joint Felt
1206-53-2	Black Expansion Joint Felt
1206-53-3	Black Expansion Joint Felt
1206-54-1	Red Expansion Joint Felt

## Appendix E: Summary of Samples

1206-54-2	Red Expansion Joint Felt
1206-54-3	Red Expansion Joint Felt
1206-55-1	Fire Door Material
1206-55-2	Fire Door Material
1206-55-3	Fire Door Material
1206-56-1	Stucco Wall Fill
1206-56-2	Stucco Wall Fill
1206-56-3	Stucco Wall Fill
1206-57-1	Stair Tread Adhesive
1206-57-2	Stair Tread Adhesive
1206-57-3	Stair Tread Adhesive
1206-58-1	12" x 12" Gray Floor Tile/Mastic (Entry)
1206-58-2	12" x 12" Gray Floor Tile/Mastic (Entry)
1206-58-3	12" x 12" Gray Floor Tile/Mastic (Entry)
1206-59-1	Interior Door Caulk
1206-59-2	Interior Door Caulk
1206-59-3	Interior Door Caulk
1206-60-1	Exterior Door/Window Caulk
1206-60-2	Exterior Door/Window Caulk
1206-60-3	Exterior Door/Window Caulk
1206-61-1	White Window Caulk

## Appendix E: Summary of Samples

1206-61-2	White Window Caulk
1206-61-3	White Window Caulk
1206-62-1	Exterior Stucco
1206-62-2	Exterior Stucco
1206-62-3	Exterior Stucco
1206-62-4	Exterior Stucco
1206-62-5	Exterior Stucco
1206-63-1	Roof Core
1206-63-2	Roof Core
1206-63-3	Roof Core
1206-64-1	Flashing
1206-64-2	Flashing
1206-64-3	Flashing
1206-65-1	White Roof Caulk
1206-65-2	White Roof Caulk
1206-65-3	White Roof Caulk
1206-66-1	Gray Surface Coating
1206-66-2	Gray Surface Coating
1206-66-3	Gray Surface Coating
1206-67-1	Gray Flashing Mastic
1206-67-2	Gray Flashing Mastic

## Appendix E: Summary of Samples

1206-67-3	Gray Flashing Mastic
1206-68-1	Black Roof Patch
1206-68-2	Black Roof Patch
1206-68-3	Black Roof Patch
1206-69-1	Red Roof Patch
1206-69-2	Red Roof Patch
1206-69-3	Red Roof Patch
1206-70-1	Black Flashing Mastic
1206-70-2	Black Flashing Mastic
1206-70-3	Black Flashing Mastic
1206-71-1	White Flashing Mastic
1206-71-2	White Flashing Mastic
1206-71-3	White Flashing Mastic

## **Appendix F**

### **Summary of Asbestos Containing Materials**

## Appendix F: Summary of Asbestos Containing Materials

Sample ID	Sample Description	Layer	% Asbestos
1206-11-1	White Leveling Compound	White	None Detected
		Black	8% Chrysotile
1206-11-2	White Leveling Compound	White	None Detected
		Black	First Stop Positive
1206-11-3	White Leveling Compound	White	None Detected
		Black	First Stop Positive
1206-12-1	12" x 12" Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	8% Chrysotile
1206-12-2	12" x 12" Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Stop Positive
1206-12-3	12" x 12" Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Stop Positive
1206-19-1	Black Mastic on HVAC Duct Wrap	-	10% Chrysotile
1206-19-2	Black Mastic on HVAC Duct Wrap	-	First Positive Stop
1206-19-3	Black Mastic on HVAC Duct Wrap	-	First Positive Stop
1206-22-1	TSI Pipe Insulation	-	5% Amosite 55% Chrysotile
1206-26-1	12" x 12" Blue Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	3% Chrysotile
1206-26-2	12" x 12" Blue Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Positive Stop
1206-26-3	12" x 12" Blue Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Positive Stop
1206-39-1	Black Mastic on HVAC Duct Wrap	-	8% Chrysotile
1206-39-2	Black Mastic on HVAC Duct Wrap	-	First Positive Stop
1206-39-3	Black Mastic on HVAC Duct Wrap	-	First Positive Stop
1206-40-1	12" x 12" Gray on Brown Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	8% Chrysotile
1206-40-2	12" x 12" Gray on Brown Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Positive Stop
1206-40-3	12" x 12" Gray on Brown Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Positive Stop
1206-42-1	12" x 12" Beige w/Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	8% Chrysotile
1206-42-2	12" x 12" Beige w/Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Stop Positive

## Appendix F: Summary of Asbestos Containing Materials

Sample ID	Sample Description	Layer	% Asbestos
1206-42-3	12" x 12" Beige w/Tan Floor Tile/Mastic	Floor Tile	None Detected
		Mastic	First Stop Positive
1206-44-1	Residual Black Mastic	-	8% Chrysotile
1206-44-2	Residual Black Mastic	-	First Stop Positive
1206-44-3	Residual Black Mastic	-	First Stop Positive
1206-46-1	Mudded Elbow	-	75% Chrysotile
1206-46-2	Mudded Elbow	-	First Stop Positive
1206-50-1	Residual Floor Penetration TSI	-	40% Chrysotile
1206-52-1	Timber Column Felt	-	60% Chrysotile
1206-52-2	Timber Column Felt	-	First Stop Positive
1206-52-3	Timber Column Felt	-	First Stop Positive
1206-67-1	Gray Flashing Mastic	-	5% Chrysotile
1206-67-2	Gray Flashing Mastic	-	First Stop Positive
1206-67-3	Gray Flashing Mastic	-	First Stop Positive
1206-70-1	Black Flashing Mastic	-	10% Chrysotile
1206-70-2	Black Flashing Mastic	-	First Stop Positive
1206-70-3	Black Flashing Mastic	-	First Stop Positive



## Appendix G

### Summary of Inspection

## SUMMARY OF INSPECTION

### 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

<u>Functional Space No.:</u>	<u>Functional Space Type:</u>	
1.	MR	Mechanical Room
2.	S	Suite
3.	C	Chase
4.	H	Hallway
5.	E	Elevator
6.	O	Office

#### ACM CHARACTERISTICS:

F = Friable

NF = Non-Friable

#### ASSESSMENT RESULTS:

(Refer to Physical Assessment Data)

#### POTENTIAL FOR DISTURBANCE:

(Refer to Physical Assessment Data)

## SUMMARY OF INSPECTION

### PHYSICAL ASSESSMENT CATAGORIES:

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

## Appendix H

### Physical Assessment Data Sheets

## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

**Functional Space No:** 1, 3 **Type:** O, H **Location:** (See Homogeneous Area Plan)

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

**Description:** HA-1, Black Mastic Under Various Non-ACM Flooring Components

**Approximate Amount of Material (SF or LF):** ~3,600 ft<sup>2</sup>

**Condition:**

**Percent Damage:** X >0% \_\_\_\_\_ <10% \_\_\_\_\_ >10% \_\_\_\_\_ <25% \_\_\_\_\_ >25%

**Extent of Damage:** \_\_\_\_\_ Localized \_\_\_\_\_ X Distributed \_\_\_\_\_

**Type of Damage:** X Deterioration \_\_\_\_\_ Water \_\_\_\_\_ X Physical \_\_\_\_\_

**Description:**

ACM black mastic is noted under multiple flooring finishes (i.e. non-ACM floor tiles; white leveling compound; residual under carpet) in various areas throughout the 1<sup>st</sup> and 2<sup>nd</sup> floors of the building. Overall, this material is in a non-friable and intact condition.

**Overall Condition Rating:** Sig. Damaged \_\_\_\_\_ Damaged \_\_\_\_\_ Good \_\_\_\_\_ X

**Potential for Disturbance:**

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

**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.

**Signed:**  **Date:** 03/27/2018

**Building:** Former SCE&G Main Building

**PHYSICAL ASSESSMENT DATA SHEET**

**Functional Space No:** 1, 3    **Type:** O, H    **Location:** (See Homogeneous Area Plan)  
**Type of Suspect Material:** TSI    **Surfacing** X    **Misc.** \_\_\_\_\_

**Description:** HA-2, Black Mastic on HVAC Duct Wrap

**Approximate Amount of Material (SF or LF):** ~250 ft<sup>2</sup>

**Condition:**

**Percent Damage:**    X >0%    \_\_\_\_\_ <10%    \_\_\_\_\_ >10%    \_\_\_\_\_ <25%    \_\_\_\_\_ >25%

**Extent of Damage:**    \_\_\_\_\_ Localized    X Distributed

**Type of Damage:**    X Deterioration    \_\_\_\_\_ Water    \_\_\_\_\_ Physical

**Description:**

Asbestos-containing black mastic on HVAC duct wrap was found above the drop ceiling in multiple areas on the 1<sup>st</sup> and 2<sup>nd</sup> floors. Overall this material was found to be in a good, intact non-friable condition with no damage being noted during the investigation.

**Overall Condition Rating:**    Sig. Damaged    \_\_\_\_\_ Damaged    \_\_\_\_\_ Good    X

**Potential for Disturbance:**

	<b>High</b>	<b>Moderate</b>	<b>Low</b>	<b>Friable ACM</b>
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
_____	_____	<u>8</u>

**Overall Hazard Rank #:**

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

**Comments:**    Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility.

**Signed:**     **Date:** 03/27/2018

**Building:**    Former SCE&G Main Building

### PHYSICAL ASSESSMENT DATA SHEET

**Functional Space No:** 3 **Type:** H **Location:** (See Homogeneous Area Plan)  
**Type of Suspect Material:** X **TSI**                      **Surfacing**                      **Misc.**                     

Description: HA-3, TSI Pipe Insulation and Residual TSI on Floor Penetrations

Approximate Amount of Material (SF or LF): ~15 LF/40 SF Penetrations

**Condition:**

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

Extent of Damage:   X   Localized                      Distributed

Type of Damage:   X   Deterioration                      Water                      Physical

**Description:**

One (1) run of asbestos-containing TSI pipe insulation was found in the corner of H102 on the first floor of the building. No other suspect pipe insulation was found during the field investigation. Residual TSI was noted on several penetrations in the walls and ceiling of Room 100. The TSI pipe insulation was in an intact but friable condition with some localized damage being noted. Some TSI debris was noted on the floor in the area below the damage area.

Overall Condition Rating: Sig. Damaged                      Damaged                        X   Good                     

**Potential for Disturbance:**

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

**Overall Potential Disturbance Rating:**

Potential for Sig. Damage	Potential for Damage	Low Potential for Damage
<u>                    </u>	<u>                    </u>	<u>  7  </u>

**Overall Hazard Rank #:**

Sig. Damaged	Pot. Sig. Damage	Potential Damage	Low Pot. Damage
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>  4  </u>

**Comments:** Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility.

**Signed:**                     Mike Murray                     **Date:** 03/27/2018



## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

**Functional Space No:** 2 **Type:** R **Location:** (See Homogeneous Area Plan)

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

Description: HA-4, Mudded Elbows

Approximate Amount of Material (SF or LF): 2 Elbows

**Condition:**

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

Extent of Damage: X Localized                      Distributed

Type of Damage: X Deterioration                      Water                      X Physical

**Description:**

The two mudded elbows were found in the north west corner of Room 100 on the 1<sup>st</sup> floor. No other mudded elbows were identified during the field investigation. This material is in an intact but friable condition with only minor localized damage.

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>X</u>
Influence of Vibration	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>
Frequency of Air Erosion	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>
Potential of Water Erosion	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>

**Overall Potential Disturbance Rating:**

Potential for Sig. Damage	Potential for Damage	Low Potential for Damage
<u>                    </u>	<u>                    </u>	<u>7</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.

**Signed:**  **Date:** 03/27/2018

## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

**Functional Space No:** 2 **Type:** R **Location:** (See Homogeneous Area Plan)

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

**Description:** HA-5, Timber Column Felt

**Approximate Amount of Material (SF or LF):** ~ 5 ft<sup>2</sup>

**Condition:**

**Percent Damage:** X >0% \_\_\_\_\_ <10% \_\_\_\_\_ >10% \_\_\_\_\_ <25% \_\_\_\_\_ >25%

**Extent of Damage:** X Localized \_\_\_\_\_ Distributed \_\_\_\_\_

**Type of Damage:** X Deterioration \_\_\_\_\_ Water \_\_\_\_\_ X Physical \_\_\_\_\_

**Description:**

Asbestos-containing timber column felt was found on the two timber support columns in Room 111 on the 1<sup>st</sup> floor. Review of other columns throughout the build showed this condition was localized in this area and metal pedestals were the interface of the columns with the concrete slab. Overall, this material was in an intact and non-friable condition.

**Overall Condition Rating:** Sig. Damaged \_\_\_\_\_ Damaged \_\_\_\_\_ Good \_\_\_\_\_ X

**Potential for Disturbance:**

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

**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.

**Signed:**  **Date:** 03/27/2018

## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

**Functional Space No:** 4 **Type:** R **Location:** (See Homogeneous Area Plan)

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

Description: HA-6, Gray Flashing Mastic

Approximate Amount of Material (SF or LF): ~90 SF

**Condition:**

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

Extent of Damage: \_\_\_\_\_ Localized \_\_\_\_\_ X Distributed

Type of Damage: X Deterioration \_\_\_\_\_ X Water \_\_\_\_\_ Physical

**Description:**

Asbestos-containing gray mastic was found on flashing at the interface of the exterior wall of the original structure and the metal roof of the all metal addition (Room 110) found on the northwest corner of the building on the metal roof. This material was found in good, intact non friable condition with no damage being noted.

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
_____	_____	<u>8</u>

**Overall Hazard Rank #:**

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

**Comments:** Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility.

**Signed:**  **Date:** 03/27/2018

## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

**Functional Space No:** 4      **Type:** R      **Location:** (See Homogeneous Area Plan)

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

Description: HA-7, Black Flashing Mastic

Approximate Amount of Material (SF or LF): ~ 50 SF

**Condition:**

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

Extent of Damage:      \_\_\_\_\_ Localized      X Distributed

Type of Damage:      X Deterioration      X Water      \_\_\_\_\_ Physical

**Description:**

Asbestos-containing black mastic was found on flashing at the interface of the exterior wall of the original structure and the metal roof above the rear-loading dock. This material is in good, intact non-friable condition.

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
_____	_____	<u>8</u>

**Overall Hazard Rank #:**

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

**Comments:**      Potential for Disturbance and Hazard Ranking assessed is based on current usage of the facility.

**Signed:** Mike Murray      **Date:** 03/27/2018

## PHYSICAL ASSESSMENT DATA SHEET

**Building:** Former SCE&G Main Building

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

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

Description: HA-8, Elevator Doors and Brake Shoes

Approximate Amount of Material (SF or LF): 1 Elevator, 3 Doors

**Condition:**

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

Extent of Damage: X Localized                      Distributed

Type of Damage: X Deterioration                      Water                      X Physical

**Description:**

Asbestos-containing insulation can be found in the interior cavity of elevator doors, and pads associated with the braking systems for elevators have been known to contain asbestos in older elevators. Due to the destructive methods necessary to collect samples of these types of building components, these materials were not sampled as part of this investigation and they are assumed positive until samples can be collected and the materials proven negative by laboratory analysis.

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>X</u>
Influence of Vibration	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>
Frequency of Air Erosion	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>
Potential of Water Erosion	<u>                    </u>	<u>                    </u>	<u>X</u>	<u>X</u>

**Overall Potential Disturbance Rating:**

	Potential for Sig. Damage	Potential for Damage	Low Potential for Damage
	<u>                    </u>	<u>                    </u>	<u>7</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.

**Signed:** Mike Murray **Date:** 03/27/2018

## **Appendix I**

### **Laboratory Analysis Reports**



# EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

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

<http://www.EMSL.com> / [greensborolab@emsl.com](mailto:greensborolab@emsl.com)

EMSL Order: 021801945

Customer ID: FMEC62

Customer PO: E5700.19

Project ID:

**Attention:** Glynn M. Ellen  
F & ME Consultants  
1825 Blanding Street  
Columbia, SC 29201

**Phone:** (803) 254-4540

**Fax:** (803) 254-4542

**Received Date:** 03/19/2018 9:00 AM

**Analysis Date:** 03/21/2018

**Collected Date:** 03/16/2018

**Project:** ACM Investigation - Former SCE&G Building

## 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
1206-1-1-Drywall <small>021801945-0001</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
1206-1-1-Joint Compound <small>021801945-0001A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-1-2-Drywall <small>021801945-0002</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
1206-1-2-Joint Compound <small>021801945-0002A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	<1% Cellulose	30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-1-3-Drywall <small>021801945-0003</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
1206-1-3-Joint Compound <small>021801945-0003A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-1-4-Drywall <small>021801945-0004</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
1206-1-4-Joint Compound <small>021801945-0004A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-1-5-Drywall <small>021801945-0005</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	8% Cellulose	92% Non-fibrous (Other)	None Detected
1206-1-5-Joint Compound <small>021801945-0005A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-1-6-Drywall <small>021801945-0006</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	30% Cellulose 1% Glass	69% Non-fibrous (Other)	None Detected
1206-1-6-Joint Compound <small>021801945-0006A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	30% Ca Carbonate 69% Non-fibrous (Other)	None Detected
1206-1-6-Tape <small>021801945-0006B</small>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-1-7-Drywall <small>021801945-0007</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose 1% Glass	84% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33





# EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

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

<http://www.EMSL.com> / [greensborolab@emsl.com](mailto:greensborolab@emsl.com)

**EMSL Order:** 021801945  
**Customer ID:** FMEC62  
**Customer PO:** E5700.19  
**Project ID:**

## 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
1206-1-7-Joint Compound <small>021801945-0007A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	30% Ca Carbonate 69% Non-fibrous (Other)	None Detected
1206-1-7-Tape <small>021801945-0007B</small>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-2-1 <small>021801945-0008</small>	2x2 Heavy Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	30% Cellulose 55% Min. Wool	5% Perlite 10% Non-fibrous (Other)	None Detected
1206-2-2 <small>021801945-0009</small>	2x2 Heavy Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	30% Cellulose 55% Min. Wool	5% Perlite 10% Non-fibrous (Other)	None Detected
1206-2-3 <small>021801945-0010</small>	2x2 Heavy Textured Ceiling Tiles	Gray/White Non-Fibrous Homogeneous	30% Cellulose 55% Min. Wool	10% Perlite 5% Non-fibrous (Other)	None Detected
1206-3-1 <small>021801945-0011</small>	2x4 Small Pinhole Ceiling Tiles	Brown/Gray Fibrous Homogeneous	40% Cellulose 20% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
1206-3-2 <small>021801945-0012</small>	2x4 Small Pinhole Ceiling Tiles	Gray/White Fibrous Homogeneous	40% Cellulose 20% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
1206-3-3 <small>021801945-0013</small>	2x4 Small Pinhole Ceiling Tiles	Gray/White/Beige Fibrous Homogeneous	40% Cellulose 20% Min. Wool	30% Perlite 10% Non-fibrous (Other)	None Detected
1206-4-1 <small>021801945-0014</small>	Cream Baseboard Adhesive	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-4-2 <small>021801945-0015</small>	Cream Baseboard Adhesive	Yellow Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-5-1 <small>021801945-0016</small>	Brown Baseboard Adhesive	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-5-2 <small>021801945-0017</small>	Brown Baseboard Adhesive	Brown Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-6-1 <small>021801945-0018</small>	Carpet Adhesive	Tan Non-Fibrous Homogeneous	1% Cellulose <1% Synthetic	99% Non-fibrous (Other)	None Detected
1206-6-2 <small>021801945-0019</small>	Carpet Adhesive	Tan/Yellow Non-Fibrous Homogeneous	<1% Cellulose 1% Synthetic	99% Non-fibrous (Other)	None Detected
1206-7-1-Floor Tile <small>021801945-0020</small>	12x12 Gray Floor Tile/Mastic	Gray/White/Blue Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-7-1-Mastic <small>021801945-0020A</small>	12x12 Gray Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-7-1-Leveler <small>021801945-0020B</small>	12x12 Gray Floor Tile/Mastic	Gray Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
1206-7-2-Floor Tile <small>021801945-0021</small>	12x12 Gray Floor Tile/Mastic	Gray/White/Blue Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-7-2-Mastic <small>021801945-0021A</small>	12x12 Gray Floor Tile/Mastic	Yellow/Orange Non-Fibrous Homogeneous	<1% Cellulose <1% Synthetic	100% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33



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**Customer ID:** FMEC62  
**Customer PO:** E5700.19  
**Project ID:**

## 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
1206-8-1-Floor Tile <small>021801945-0022</small>	12x12 Blue Floor Tile/Mastic	Blue Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-8-1-Mastic <small>021801945-0022A</small>	12x12 Blue Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-8-2-Floor Tile <small>021801945-0023</small>	12x12 Blue Floor Tile/Mastic	Blue Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-8-2-Mastic <small>021801945-0023A</small>	12x12 Blue Floor Tile/Mastic	Tan/Yellow Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-9-1-Floor Tile <small>021801945-0024</small>	12x12 Red Floor Tile/Mastic	Red/Purple Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-9-1-Mastic <small>021801945-0024A</small>	12x12 Red Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-9-2-Floor Tile <small>021801945-0025</small>	12x12 Red Floor Tile/Mastic	Purple/Rust Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-9-2-Mastic <small>021801945-0025A</small>	12x12 Red Floor Tile/Mastic	Yellow/Orange Non-Fibrous Homogeneous	<1% Cellulose <1% Synthetic	100% Non-fibrous (Other)	None Detected
1206-10-1-Floor Tile <small>021801945-0026</small>	12x12 Peach Floor Tile/Mastic	Various/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-10-1-Mastic <small>021801945-0026A</small>	12x12 Peach Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-10-2-Floor Tile <small>021801945-0027</small>	12x12 Peach Floor Tile/Mastic	Various/Beige Non-Fibrous Heterogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-10-2-Mastic <small>021801945-0027A</small>	12x12 Peach Floor Tile/Mastic	Tan/Black/Orange Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (Other)	<1% Chrysotile
1206-11-1-Tan Mastic <small>021801945-0028</small>	White Leveling Compound	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-11-1-Leveler <small>021801945-0028A</small>	White Leveling Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1206-11-1-Black Mastic <small>021801945-0028B</small>	White Leveling Compound	Black Non-Fibrous Homogeneous	<1% Cellulose	92% Non-fibrous (Other)	8% Chrysotile
1206-11-2-Tan Mastic <small>021801945-0029</small>	White Leveling Compound	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-11-2-Leveler <small>021801945-0029A</small>	White Leveling Compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1206-11-2-Black Mastic <small>021801945-0029B</small>	White Leveling Compound				Positive Stop (Not Analyzed)
1206-11-3-Leveler <small>021801945-0030</small>	White Leveling Compound	Gray/White Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33



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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-11-3-Black Mastic	White Leveling Compound				Positive Stop (Not Analyzed)
<i>021801945-0030A</i>					
1206-12-1-Floor Tile	12x12 Tan Floor Tile/Mastic	Gray/Tan/Green Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0031</i>					
1206-12-1-Mastic	12x12 Tan Floor Tile/Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose	92% Non-fibrous (Other)	8% Chrysotile
<i>021801945-0031A</i>					
1206-12-2-Floor Tile	12x12 Tan Floor Tile/Mastic	Gray/Green/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0032</i>					
1206-12-2-Mastic	12x12 Tan Floor Tile/Mastic				Positive Stop (Not Analyzed)
<i>021801945-0032A</i>					
1206-13-1	Tan Sink Undercoating	Beige Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
<i>021801945-0033</i>					
1206-13-2	Tan Sink Undercoating	Beige Fibrous Homogeneous	15% Cellulose	1% Mica 84% Non-fibrous (Other)	None Detected
<i>021801945-0034</i>					
1206-14-1-Floor Tile	12x12 Light Brown Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0035</i>					
1206-14-1-Mastic	12x12 Light Brown Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
<i>021801945-0035A</i>					
1206-14-2-Floor Tile	12x12 Light Brown Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0036</i>					
1206-14-2-Mastic	12x12 Light Brown Floor Tile/Mastic	White/Orange Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
<i>021801945-0036A</i>					
1206-15-1-Floor Tile	12x12 Tan Streaked Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0037</i>					
1206-15-1-Mastic	12x12 Tan Streaked Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
<i>021801945-0037A</i>					
1206-15-2-Floor Tile	12x12 Tan Streaked Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
<i>021801945-0038</i>					
1206-15-2-Mastic	12x12 Tan Streaked Floor Tile/Mastic	Yellow/Orange Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
<i>021801945-0038A</i>					
1206-16-1	Tan Mastic on HVAC Duct Wrap	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
<i>021801945-0039</i>					
1206-16-2	Tan Mastic on HVAC Duct Wrap	Beige Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
<i>021801945-0040</i>					
1206-17-1	Gray Mastic on HVAC Duct Wrap	Gray/White Fibrous Homogeneous	<1% Cellulose 20% Glass	80% Non-fibrous (Other)	None Detected
<i>021801945-0041</i>					
1206-17-2	Gray Mastic on HVAC Duct Wrap	Gray Non-Fibrous Homogeneous	<1% Cellulose <1% Glass	100% Non-fibrous (Other)	None Detected
<i>021801945-0042</i>					

Initial report from: 03/22/2018 07:42:33



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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-18-1 <small>021801945-0043</small>	White Mastic on HVAC Duct Wrap	Gray Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-18-2 <small>021801945-0044</small>	White Mastic on HVAC Duct Wrap	Gray Non-Fibrous Homogeneous	1% Cellulose <1% Glass	99% Non-fibrous (Other)	None Detected
1206-19-1 <small>021801945-0045</small>	Black Mastic on HVAC Duct Wrap	Black Non-Fibrous Homogeneous	<1% Cellulose	90% Non-fibrous (Other)	10% Chrysotile
1206-19-2 <small>021801945-0046</small>	Black Mastic on HVAC Duct Wrap				Positive Stop (Not Analyzed)
1206-20-1-Skim Coat <small>021801945-0047</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-1-Rough Coat <small>021801945-0047A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	35% Quartz 65% Non-fibrous (Other)	None Detected
1206-20-2-Skim Coat <small>021801945-0048</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-2-Rough Coat <small>021801945-0048A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	35% Quartz 65% Non-fibrous (Other)	None Detected
1206-20-3-Skim Coat <small>021801945-0049</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-3-Rough Coat <small>021801945-0049A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	35% Quartz 65% Non-fibrous (Other)	None Detected
1206-20-4-Skim Coat <small>021801945-0050</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-4-Rough Coat <small>021801945-0050A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	35% Quartz 65% Non-fibrous (Other)	None Detected
1206-20-5-Skim Coat <small>021801945-0051</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-5-Rough Coat <small>021801945-0051A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Homogeneous	<1% Cellulose	35% Quartz 65% Non-fibrous (Other)	None Detected
1206-20-6-Skim Coat <small>021801945-0052</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-6-Rough Coat <small>021801945-0052A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Heterogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-20-7-Skim Coat <small>021801945-0053</small>	Plaster (Both Coates)	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-20-7-Rough Coat <small>021801945-0053A</small>	Plaster (Both Coates)	Gray/Tan Non-Fibrous Heterogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-21-1 <small>021801945-0054</small>	Brown Interior Window Caulk	Brown Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-21-2 <i>021801945-0055</i>	Brown Interior Window Caulk	Brown Non-Fibrous Homogeneous	<1% Cellulose 1% Glass	99% Non-fibrous (Other)	None Detected
1206-22-1 <i>021801945-0056</i>	TSI Pipe Insulation	Gray/White Fibrous Homogeneous	2% Cellulose	38% Non-fibrous (Other)	5% Amosite 55% Chrysotile
1206-23-1-Drywall <i>021801945-0057</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
1206-23-1-Joint Compound <i>021801945-0057A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-23-1-Tape <i>021801945-0057B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-23-2-Drywall <i>021801945-0058</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
1206-23-2-Joint Compound <i>021801945-0058A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-23-2-Tape <i>021801945-0058B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-23-3-Drywall <i>021801945-0059</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
1206-23-3-Joint Compound <i>021801945-0059A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-23-3-Tape <i>021801945-0059B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-23-4-Drywall <i>021801945-0060</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
1206-23-4-Joint Compound <i>021801945-0060A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-23-5-Drywall <i>021801945-0061</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
1206-23-5-Joint Compound <i>021801945-0061A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	30% Ca Carbonate 69% Non-fibrous (Other)	None Detected
1206-23-5-Tape <i>021801945-0061B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-24-1 <i>021801945-0062</i>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	45% Cellulose 1% Min. Wool	45% Perlite 9% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
1206-24-2 <small>021801945-0063</small>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	45% Cellulose 1% Min. Wool	45% Perlite 9% Non-fibrous (Other)	None Detected
1206-24-3 <small>021801945-0064</small>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	45% Cellulose 1% Glass	40% Perlite 14% Non-fibrous (Other)	None Detected
1206-25-1-Carpet Mastic <small>021801945-0065</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Clear Non-Fibrous Homogeneous	<1% Cellulose <1% Synthetic	100% Non-fibrous (Other)	None Detected
1206-25-1-Floor Tile <small>021801945-0065A</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Gray/Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-25-1-Mastic <small>021801945-0065B</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-25-2-Carpet Mastic <small>021801945-0066</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Yellow/Clear Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-25-2-Floor Tile <small>021801945-0066A</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Brown/Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-25-2-Mastic <small>021801945-0066B</small>	12x12 Gray/Off White Floor Tile/Mastic/ Carpet Adhesive	Yellow/Clear/Orange Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-26-1-Floor Tile <small>021801945-0067</small>	12x12 Blue Floor Tile/Mastic	Blue Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-26-1-Mastic <small>021801945-0067A</small>	12x12 Blue Floor Tile/Mastic	Black Non-Fibrous Homogeneous	2% Cellulose	95% Non-fibrous (Other)	3% Chrysotile
1206-26-2-Floor Tile <small>021801945-0068</small>	12x12 Blue Floor Tile/Mastic	Green Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-26-2-Mastic <small>021801945-0068A</small>	12x12 Blue Floor Tile/Mastic				Positive Stop (Not Analyzed)
1206-27-1 <small>021801945-0069</small>	Baseboard Adhesive	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-27-2 <small>021801945-0070</small>	Baseboard Adhesive	Yellow Non-Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
1206-28-1 <small>021801945-0071</small>	Gypsum Ceiling Tiles	Brown/Gray/White Fibrous Heterogeneous	15% Cellulose 1% Glass	1% Mica 83% Non-fibrous (Other)	None Detected
1206-28-2 <small>021801945-0072</small>	Gypsum Ceiling Tiles	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	1% Mica 88% Non-fibrous (Other)	None Detected
1206-28-3 <small>021801945-0073</small>	Gypsum Ceiling Tiles	Brown/Gray/White Fibrous Heterogeneous	10% Cellulose 1% Glass	1% Mica 88% Non-fibrous (Other)	None Detected
1206-29-1-Floor Tile <small>021801945-0074</small>	12x12 Off-White Floor Tile/Mastic	Brown/Gray Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
1206-29-1-Mastic <small>021801945-0074A</small>	12x12 Off-White Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-29-2-Floor Tile <small>021801945-0075</small>	12x12 Off-White Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-29-2-Mastic <small>021801945-0075A</small>	12x12 Off-White Floor Tile/Mastic	Yellow/Gold Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-30-1 <small>021801945-0076</small>	Gray Duct Mastic	Gray Non-Fibrous Homogeneous	<1% Cellulose 10% Glass	90% Non-fibrous (Other)	None Detected
1206-30-2 <small>021801945-0077</small>	Gray Duct Mastic	Gray Fibrous Homogeneous	<1% Cellulose 10% Glass	90% Non-fibrous (Other)	None Detected
1206-31-1 <small>021801945-0078</small>	Textured Wall Surfacing Material	Gray/White Non-Fibrous Homogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-31-2 <small>021801945-0079</small>	Textured Wall Surfacing Material	Gray/White Non-Fibrous Homogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-31-3 <small>021801945-0080</small>	Textured Wall Surfacing Material	Gray/Tan/White Non-Fibrous Heterogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-32-1 <small>021801945-0081</small>	Light Gray Duct Mastic	Beige Non-Fibrous Homogeneous	1% Cellulose 5% Glass	10% Ca Carbonate 84% Non-fibrous (Other)	None Detected
1206-32-2 <small>021801945-0082</small>	Light Gray Duct Mastic	White/Beige Non-Fibrous Homogeneous	1% Cellulose 5% Glass	94% Non-fibrous (Other)	None Detected
1206-33-1-Drywall <small>021801945-0083</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose 1% Glass	84% Non-fibrous (Other)	None Detected
1206-33-1-Joint Compound <small>021801945-0083A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-33-2-Drywall <small>021801945-0084</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
1206-33-2-Joint Compound <small>021801945-0084A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-33-3-Drywall <small>021801945-0085</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose 1% Glass	84% Non-fibrous (Other)	None Detected
1206-33-3-Joint Compound <small>021801945-0085A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-33-4-Drywall <small>021801945-0086</small>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected
1206-33-4-Joint Compound <small>021801945-0086A</small>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33



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**Customer ID:** FMEC62  
**Customer PO:** E5700.19  
**Project ID:**

## 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
1206-33-5-Drywall <i>021801945-0087</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	20% Cellulose 1% Glass	79% Non-fibrous (Other)	None Detected
1206-33-5-Joint Compound <i>021801945-0087A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
1206-33-6-Drywall <i>021801945-0088</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose 1% Glass	84% Non-fibrous (Other)	None Detected
1206-33-6-Joint Compound <i>021801945-0088A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	30% Ca Carbonate 69% Non-fibrous (Other)	None Detected
1206-33-6-Tape <i>021801945-0088B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-33-7-Drywall <i>021801945-0089</i>	Drywall/Joint Compound	Brown/Gray Fibrous Heterogeneous	15% Cellulose 1% Glass	84% Non-fibrous (Other)	None Detected
1206-33-7-Joint Compound <i>021801945-0089A</i>	Drywall/Joint Compound	White Non-Fibrous Homogeneous	1% Cellulose	30% Ca Carbonate 69% Non-fibrous (Other)	None Detected
1206-33-7-Tape <i>021801945-0089B</i>	Drywall/Joint Compound	Beige Fibrous Homogeneous	100% Cellulose		None Detected
1206-34-1 <i>021801945-0090</i>	Carpet Adhesive	Tan/Yellow Non-Fibrous Homogeneous	3% Cellulose 1% Synthetic	96% Non-fibrous (Other)	None Detected
1206-34-2 <i>021801945-0091</i>	Carpet Adhesive	Tan/Yellow/Gold Non-Fibrous Heterogeneous	3% Cellulose 1% Synthetic	96% Non-fibrous (Other)	None Detected
1206-35-1 <i>021801945-0092</i>	Baseboard Adhesive	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-35-2 <i>021801945-0093</i>	Baseboard Adhesive	Beige Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-36-1 <i>021801945-0094</i>	2x4 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	40% Cellulose 10% Min. Wool	40% Perlite 10% Non-fibrous (Other)	None Detected
1206-36-2 <i>021801945-0095</i>	2x4 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	40% Cellulose 10% Min. Wool	40% Perlite 10% Non-fibrous (Other)	None Detected
1206-36-3 <i>021801945-0096</i>	2x4 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	45% Cellulose 10% Min. Wool	40% Perlite 5% Non-fibrous (Other)	None Detected
1206-37-1 <i>021801945-0097</i>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
1206-37-2 <i>021801945-0098</i>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
1206-37-3 <i>021801945-0099</i>	2x2 Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	45% Cellulose 30% Min. Wool	20% Perlite 5% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33





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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-38-1 <small>021801945-0100</small>	2x2 Rough Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	30% Cellulose 40% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
1206-38-2 <small>021801945-0101</small>	2x2 Rough Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	30% Cellulose 40% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
1206-38-3 <small>021801945-0102</small>	2x2 Rough Textured Ceiling Tiles	Gray/White Fibrous Homogeneous	30% Cellulose 40% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
1206-39-1 <small>021801945-0103</small>	Black Mastic on HVAC Duct Wrap	Black Non-Fibrous Homogeneous	2% Cellulose	90% Non-fibrous (Other)	8% Chrysotile
1206-39-2 <small>021801945-0104</small>	Black Mastic on HVAC Duct Wrap				Positive Stop (Not Analyzed)
1206-40-1-Floor Tile <small>021801945-0105</small>	12x12 Gray on Brown Floor Tile/Mastic	Brown/Gray/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-40-1-Mastic <small>021801945-0105A</small>	12x12 Gray on Brown Floor Tile/Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose	92% Non-fibrous (Other)	8% Chrysotile
1206-40-2-Floor Tile <small>021801945-0106</small>	12x12 Gray on Brown Floor Tile/Mastic	Brown/Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-40-2-Mastic <small>021801945-0106A</small>	12x12 Gray on Brown Floor Tile/Mastic				Positive Stop (Not Analyzed)
1206-41-1-Floor Tile <small>021801945-0107</small>	12x12 Gray w/ White Floor Tile/Mastic	Gray/Tan Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-41-1-Mastic <small>021801945-0107A</small>	12x12 Gray w/ White Floor Tile/Mastic	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-41-2-Floor Tile <small>021801945-0108</small>	12x12 Gray w/ White Floor Tile/Mastic	Gray/Tan Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-41-2-Mastic <small>021801945-0108A</small>	12x12 Gray w/ White Floor Tile/Mastic	Tan/Yellow Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-42-1-Floor Tile <small>021801945-0109</small>	12x12 Beige w/ Tan Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-42-1-Mastic <small>021801945-0109A</small>	12x12 Beige w/ Tan Floor Tile/Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose	92% Non-fibrous (Other)	8% Chrysotile
1206-42-2-Floor Tile <small>021801945-0110</small>	12x12 Beige w/ Tan Floor Tile/Mastic	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-42-2-Mastic <small>021801945-0110A</small>	12x12 Beige w/ Tan Floor Tile/Mastic				Positive Stop (Not Analyzed)
1206-43-1-Top Mastic <small>021801945-0111</small>	12x12 White w/ Black Floor Tile/Mastic	Yellow Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-43-1-Floor Tile <small>021801945-0111A</small>	12x12 White w/ Black Floor Tile/Mastic	Gray/White Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-43-1-Bottom Mastic <small>021801945-0111B</small>	12x12 White w/ Black Floor Tile/Mastic	Tan/Black Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	<1% Chrysotile
1206-43-2-Top Mastic <small>021801945-0112</small>	12x12 White w/ Black Floor Tile/Mastic	Yellow Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-43-2-Floor Tile <small>021801945-0112A</small>	12x12 White w/ Black Floor Tile/Mastic	Gray/White/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-43-2-Bottom Mastic <small>021801945-0112B</small>	12x12 White w/ Black Floor Tile/Mastic	Black/Yellow Non-Fibrous Heterogeneous	<1% Cellulose	100% Non-fibrous (Other)	<1% Chrysotile
1206-44-1 <small>021801945-0113</small>	Residual Black Floor Tile Mastic	Black Non-Fibrous Homogeneous	<1% Cellulose	92% Non-fibrous (Other)	8% Chrysotile
1206-44-2 <small>021801945-0114</small>	Residual Black Floor Tile Mastic				Positive Stop (Not Analyzed)
1206-45-1 <small>021801945-0115</small>	Red Fire Stop	Red Fibrous Homogeneous	<1% Cellulose 3% Glass	97% Non-fibrous (Other)	None Detected
1206-45-2 <small>021801945-0116</small>	Red Fire Stop	Red/Black Non-Fibrous Homogeneous	<1% Cellulose 1% Glass	99% Non-fibrous (Other)	None Detected
1206-46-1 <small>021801945-0117</small>	Mudded Elbow	Gray Fibrous Homogeneous	5% Cellulose	20% Non-fibrous (Other)	75% Chrysotile
1206-46-2 <small>021801945-0118</small>	Mudded Elbow				Positive Stop (Not Analyzed)
1206-47-1 <small>021801945-0119</small>	Floor Underfelt (Old)	Brown/Black Fibrous Homogeneous	60% Cellulose 5% Synthetic	35% Non-fibrous (Other)	None Detected
1206-47-2 <small>021801945-0120</small>	Floor Underfelt (Old)	Brown/Black Fibrous Homogeneous	80% Cellulose 5% Synthetic 1% Hair	14% Non-fibrous (Other)	None Detected
1206-48-1 <small>021801945-0121</small>	Floor Underfelt (Newer)	Black Fibrous Homogeneous	70% Cellulose 1% Synthetic	29% Non-fibrous (Other)	None Detected
1206-48-2 <small>021801945-0122</small>	Floor Underfelt (Newer)	Black Fibrous Homogeneous	75% Cellulose 1% Synthetic <1% Hair	24% Non-fibrous (Other)	None Detected
1206-49-1 <small>021801945-0123</small>	Floor Underfelt (Red)	Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
1206-49-2 <small>021801945-0124</small>	Floor Underfelt (Red)	Brown/Tan/Beige Fibrous Heterogeneous	95% Cellulose <1% Glass	5% Non-fibrous (Other)	None Detected
1206-50-1 <small>021801945-0125</small>	Residual Floor Penetration TSI	Brown/Gray/Tan Fibrous Heterogeneous	5% Cellulose	55% Non-fibrous (Other)	40% Chrysotile
1206-51-1 <small>021801945-0126</small>	Expansion Joint Material	Black Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-51-2 <small>021801945-0127</small>	Expansion Joint Material	Tan/Black Fibrous Heterogeneous	5% Cellulose <1% Synthetic	95% Non-fibrous (Other)	None Detected
1206-52-1 <small>021801945-0128</small>	Timber Column Felt	Brown/Black Fibrous Homogeneous	5% Cellulose 10% Glass	25% Non-fibrous (Other)	60% Chrysotile
1206-52-2 <small>021801945-0129</small>	Timber Column Felt				Positive Stop (Not Analyzed)
1206-53-1 <small>021801945-0130</small>	Expansion Joint Felt (Black)	Brown/Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
1206-53-2 <small>021801945-0131</small>	Expansion Joint Felt (Black)	Brown/Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
1206-54-1 <small>021801945-0132</small>	Expansion Joint Felt (Red)	Brown/Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
1206-54-2 <small>021801945-0133</small>	Expansion Joint Felt (Red)	Brown/Tan/Black Fibrous Homogeneous	70% Cellulose <1% Synthetic	30% Non-fibrous (Other)	None Detected
1206-55-1 <small>021801945-0134</small>	Fire Door Material	Tan Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
1206-55-2 <small>021801945-0135</small>	Fire Door Material	Tan Fibrous Homogeneous	100% Cellulose		None Detected
1206-56-1 <small>021801945-0136</small>	Stucco Window Fill	Gray/Tan/White Non-Fibrous Homogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-56-2 <small>021801945-0137</small>	Stucco Window Fill	Gray/Tan/White Non-Fibrous Homogeneous	<1% Cellulose	30% Quartz 70% Non-fibrous (Other)	None Detected
1206-56-3 <small>021801945-0138</small>	Stucco Window Fill	Gray/White/Beige Non-Fibrous Heterogeneous	<1% Cellulose	25% Quartz 75% Non-fibrous (Other)	None Detected
1206-57-1 <small>021801945-0139</small>	Stair Tread Adhesive	Gray/Tan/Beige Non-Fibrous Homogeneous	<1% Cellulose <1% Fibrous (Other)	1% Quartz 99% Non-fibrous (Other)	None Detected
1206-57-2 <small>021801945-0140</small>	Stair Tread Adhesive	Yellow/Orange Non-Fibrous Homogeneous	<1% Cellulose 1% Synthetic	99% Non-fibrous (Other)	None Detected
1206-58-1-Floor Tile <small>021801945-0141</small>	12x12 Gray Floor Tile	Tan/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-58-1-Mastic <small>021801945-0141A</small>	12x12 Gray Floor Tile	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-58-2-Floor Tile <small>021801945-0142</small>	12x12 Gray Floor Tile	White/Beige Non-Fibrous Homogeneous		25% Quartz 75% Non-fibrous (Other)	None Detected
1206-58-2-Mastic <small>021801945-0142A</small>	12x12 Gray Floor Tile	Yellow/Orange Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-59-1 <small>021801945-0143</small>	Interior Door Caulk	White/Black Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected

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			% Fibrous	% Non-Fibrous	% Type
1206-59-2 <small>021801945-0144</small>	Interior Door Caulk	Brown/Beige Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-60-1 <small>021801945-0145</small>	Exterior Door/Window Caulk	White/Black Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-60-2 <small>021801945-0146</small>	Exterior Door/Window Caulk	Brown Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-61-1 <small>021801945-0147</small>	Exterior White Window Caulk	Gray/White/Beige Non-Fibrous Homogeneous	<1% Cellulose	1% Quartz 10% Ca Carbonate 89% Non-fibrous (Other)	None Detected
1206-61-2 <small>021801945-0148</small>	Exterior White Window Caulk	White/Beige/Orange Non-Fibrous Heterogeneous		2% Quartz 10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
1206-62-1 <small>021801945-0149</small>	Textured Exterior Stucco	Gray/Tan/Beige Non-Fibrous Homogeneous	<1% Cellulose	40% Quartz 5% Ca Carbonate 55% Non-fibrous (Other)	None Detected
1206-62-2 <small>021801945-0150</small>	Textured Exterior Stucco	Gray/Tan/Beige Non-Fibrous Homogeneous	<1% Cellulose	40% Quartz 5% Ca Carbonate 55% Non-fibrous (Other)	None Detected
1206-62-3 <small>021801945-0151</small>	Textured Exterior Stucco	Gray/Tan/Beige Non-Fibrous Homogeneous	<1% Cellulose	40% Quartz 5% Ca Carbonate 55% Non-fibrous (Other)	None Detected
1206-62-4-Stucco 1 <small>021801945-0152</small>	Textured Exterior Stucco	Gray/Tan/Beige Non-Fibrous Homogeneous	<1% Cellulose	40% Quartz 5% Ca Carbonate 55% Non-fibrous (Other)	None Detected
1206-62-4-Texture <small>021801945-0152A</small>	Textured Exterior Stucco	Gray/Tan/Yellow Non-Fibrous Homogeneous	2% Cellulose	10% Quartz 88% Non-fibrous (Other)	None Detected
1206-62-4-Stucco 2 <small>021801945-0152B</small>	Textured Exterior Stucco	Gray/Tan Non-Fibrous Heterogeneous		30% Quartz 1% Mica 69% Non-fibrous (Other)	None Detected
1206-62-5-Stucco 1 <small>021801945-0153</small>	Textured Exterior Stucco	White/Yellow/Beige Non-Fibrous Heterogeneous		40% Quartz 5% Ca Carbonate 55% Non-fibrous (Other)	None Detected
1206-62-5-Texture <small>021801945-0153A</small>	Textured Exterior Stucco	Gray/Tan/Yellow Non-Fibrous Heterogeneous	2% Cellulose	10% Quartz 88% Non-fibrous (Other)	None Detected
1206-62-5-Stucco 2 <small>021801945-0153B</small>	Textured Exterior Stucco	Gray/Tan Non-Fibrous Heterogeneous		30% Quartz 1% Mica 69% Non-fibrous (Other)	None Detected
1206-63-1-Roofing <small>021801945-0154</small>	Roof Core	Black Non-Fibrous Homogeneous	<1% Cellulose 15% Glass	85% Non-fibrous (Other)	None Detected
1206-63-1-Backing Board <small>021801945-0154A</small>	Roof Core	Brown/Gray Fibrous Homogeneous	10% Cellulose 2% Glass	88% Non-fibrous (Other)	None Detected
1206-63-2-Roofing <small>021801945-0155</small>	Roof Core	Black Fibrous Heterogeneous	15% Cellulose 1% Synthetic <1% Glass	84% Non-fibrous (Other)	None Detected
1206-63-2-Backing Board <small>021801945-0155A</small>	Roof Core	Brown/Gray/Green Fibrous Heterogeneous	10% Cellulose 1% Glass	89% Non-fibrous (Other)	None Detected

021801945-0155A  
Drywall-Like Material.

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1206-63-2-Insulation <i>021801945-0155B</i>	Roof Core	Brown/Gray/Yellow Fibrous Heterogeneous	30% Cellulose 1% Glass	69% Non-fibrous (Other)	None Detected
1206-64-1-Flashing <i>021801945-0156</i>	Roof Flashing	White/Blue Fibrous Homogeneous	<1% Cellulose 15% Synthetic	85% Non-fibrous (Other)	None Detected
1206-64-1-Mastic <i>021801945-0156A</i>	Roof Flashing	Tan Non-Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
1206-64-2-Flashing <i>021801945-0157</i>	Roof Flashing	White/Blue Fibrous Homogeneous	15% Synthetic	85% Non-fibrous (Other)	None Detected
1206-64-2-Mastic <i>021801945-0157A</i>	Roof Flashing	Tan/Yellow Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
1206-65-1 <i>021801945-0158</i>	White Roofing Caulk	Gray/White Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
1206-65-2 <i>021801945-0159</i>	White Roofing Caulk	White/Beige Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
1206-66-1 <i>021801945-0160</i>	Gray Roof Surface Coating	Gray/White Non-Fibrous Homogeneous	<1% Cellulose	2% Quartz 10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
1206-66-2 <i>021801945-0161</i>	Gray Roof Surface Coating	White/Beige/Rust Non-Fibrous Homogeneous	1% Cellulose	5% Quartz 10% Ca Carbonate 84% Non-fibrous (Other)	None Detected
1206-67-1 <i>021801945-0162</i>	Gray Flashing Mastic	Brown/Gray/White Non-Fibrous Homogeneous	<1% Cellulose	2% Quartz 10% Ca Carbonate 83% Non-fibrous (Other)	5% Chrysotile
1206-67-2 <i>021801945-0163</i>	Gray Flashing Mastic				Positive Stop (Not Analyzed)
1206-68-1 <i>021801945-0164</i>	Black Roof Patch Mastic	Gray/Black Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
1206-68-2 <i>021801945-0165</i>	Black Roof Patch Mastic	Gray/Black/Rust Non-Fibrous Heterogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
1206-69-1 <i>021801945-0166</i>	Red Roof Patch Mastic	Gray/White/Pink Fibrous Homogeneous	<1% Cellulose 20% Synthetic	80% Non-fibrous (Other)	None Detected
1206-69-2 <i>021801945-0167</i>	Red Roof Patch Mastic	Gray/White/Pink Fibrous Homogeneous	<1% Cellulose 20% Synthetic	80% Non-fibrous (Other)	None Detected
1206-69-3 <i>021801945-0168</i>	Red Roof Patch Mastic	Gray/White/Pink Fibrous Heterogeneous	1% Cellulose 15% Synthetic	84% Non-fibrous (Other)	None Detected
1206-70-1 <i>021801945-0169</i>	Black Flashing Mastic	Gray/White/Black Fibrous Heterogeneous	5% Cellulose	85% Non-fibrous (Other)	10% Chrysotile
1206-70-2 <i>021801945-0170</i>	Black Flashing Mastic				Positive Stop (Not Analyzed)
1206-71-1 <i>021801945-0171</i>	White Flashing Mastic	White Non-Fibrous Homogeneous	<1% Cellulose	10% Ca Carbonate 90% Non-fibrous (Other)	None Detected

Initial report from: 03/22/2018 07:42:33



# EMSL Analytical, Inc.

706 Gralin Street Kernersville, NC 27284

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

<http://www.EMSL.com> / [greensborolab@emsl.com](mailto:greensborolab@emsl.com)

**EMSL Order:** 021801945  
**Customer ID:** FMEC62  
**Customer PO:** E5700.19  
**Project ID:**

## 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
1206-71-2	White Flashing Mastic	White Non-Fibrous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
021801945-0172		Homogeneous			

Analyst(s) \_\_\_\_\_  
 Nicole Shutts (145)  
 Scott Combs (97)

  
 \_\_\_\_\_  
 Stephen Bennett, Laboratory Manager  
 or Other Approved Signatory

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

**Attention:** Glynn M. Ellen  
F & ME Consultants  
1825 Blanding Street  
Columbia, SC 29201

**Phone:** (803) 254-4540  
**Fax:** (803) 254-4542  
**Received Date:** 03/19/2018 9:00 AM  
**Analysis Date:** 03/23/2018  
**Collected Date:** 03/16/2018

**Project:** ACM Investigation - Former SCE&G Building

## 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
1206-4-3 021801945-0173		Beige Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-5-3 021801945-0174		Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-6-3 021801945-0175		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-7-3-Floor Tile 021801945-0176		Blue Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-7-3-Mastic 021801945-0177		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-8-3-Floor Tile 021801945-0178		Blue Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-8-3-Mastic 021801945-0179		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-9-3-Floor Tile 021801945-0180		Red Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-9-3-Mastic 021801945-0181		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-10-3-Floor Tile 021801945-0182		Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-10-3-Mastic 021801945-0183		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-11-3-Tan Mastic 021801945-0184		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected

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Samples analyzed by EMSL Analytical, Inc. Kernersville, NC

Initial report from: 03/23/2018 08:38:03





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## 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
1206-12-3-Floor Tile 021801945-0185		Green/Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-13-3 021801945-0186		Purple Non-Fibrous Heterogeneous	99.3	None	0.74% Chrysotile
1206-14-3-Floor Tile 021801945-0187		Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-14-3-Mastic 021801945-0188		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-15-3-Floor Tile 021801945-0189		Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-15-3-Mastic 021801945-0190		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-16-3 021801945-0191		Beige Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-17-3 021801945-0192		Gray Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-18-3 021801945-0193		Gray Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-21-3 021801945-0194		Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-25-3-Floor Tile 021801945-0195		Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-25-3-Mastic 021801945-0196		Yellow Non-Fibrous Homogeneous	100	None	No Asbestos Detected

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## 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
1206-26-3-Floor Tile 021801945-0197		Blue Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-27-3 021801945-0198		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-29-3-Floor Tile 021801945-0199		Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-29-3-Mastic 021801945-0199A		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-30-3 021801945-0200		Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-32-3 021801945-0201		Gray Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-34-3 021801945-0202		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-35-3 021801945-0203		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-40-3-Floor Tile 021801945-0204		Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-40-3-Mastic 021801945-0205		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-41-3-Floor Tile 021801945-0206		Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-41-3-Mastic 021801945-0207		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected

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Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
1206-42-3-Floor Tile 021801945-0208		Tan Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-43-3-Top Mastic 021801945-0209		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-43-3-Floor Tile 021801945-0210		Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-43-3-Bottom Mastic 021801945-0211		Black Non-Fibrous Homogeneous	99.3	None	0.68% Chrysotile
1206-45-3 021801945-0212		Red Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-47-3 021801945-0213		Black Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-48-3 021801945-0214		Black Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-49-3 021801945-0215		Tan/White Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-51-3 021801945-0216		Black Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-55-3 021801945-0217		Tan Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-57-3 021801945-0218		Beige Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-58-3 021801945-0219		Gray Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

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## 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
1206-58-3 021801945-0220		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-59-3 021801945-0221		Black/Beige Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-60-3 021801945-0222		Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-61-3 021801945-0223		Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-63-3-Roofing 021801945-0224		Black Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-63-3-Backing Board 021801945-0225		Gray Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-63-3-Insulation 021801945-0226		Yellow Non-Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-64-3-Flashing 021801945-0227		Brown Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-64-3-Mastic 021801945-0228		Tan Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-65-3 021801945-0229		White Fibrous Heterogeneous	100	None	No Asbestos Detected
1206-66-3 021801945-0230		Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
1206-68-3 021801945-0231		Black Non-Fibrous Homogeneous	99.3	None	0.70% Chrysotile

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## 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
1206-71-3 021801945-0232		Gray/White Non-Fibrous Heterogeneous	100	None	No Asbestos Detected

Analyst(s)

Stephen Bennett (61)

Stephen Bennett, Laboratory Manager  
or other approved signatory

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## Appendix J

### Chain of Custody Forms



# Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

1945

EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

Company Name : F&ME Consultants		EMSL Customer ID: FME62	
Street: 3112 Devine Street		City: Columbia	State/Province: SC
Zip/Postal Code: 29205	Country: USA	Telephone #: 803-254-4540	Fax #: 803-254-4542
Report To (Name): Glynn Ellen		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: gellen@fmeacol.com, mmincey@fmeacol.com		Purchase Order: E5700.19	
Project Name/Number: ACM Investigation - Former SCE&G Building		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: SC		CT Samples: <input checked="" type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

EMSL-Bill to:  Same  Different - If Bill to is Different note instructions in Comments\*\*  
Third Party Billing requires written authorization from third party

**Turnaround Time (TAT) Options\* - Please Check**

3 Hour  6 Hour  24 Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

\*For TEM Air 3 hr through 6 hr, please call ahead to schedule. \*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

<p><b>PCM - Air</b> <input type="checkbox"/> Check if samples are from NY</p> <p><input type="checkbox"/> NIOSH 7400</p> <p><input type="checkbox"/> w/ OSHA 8hr. TWA</p> <p><b>PLM - Bulk (reporting limit)</b></p> <p><input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (&lt;1%)</p> <p><input type="checkbox"/> PLM EPA NOB (&lt;1%)</p> <p>Point Count</p> <p><input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p>Point Count w/Gravimetric</p> <p><input type="checkbox"/> 400 (&lt;0.25%) <input type="checkbox"/> 1000 (&lt;0.1%)</p> <p><input type="checkbox"/> NYS 198.1 (friable in NY)</p> <p><input type="checkbox"/> NYS 198.6 NOB (non-friable-NY)</p> <p><input type="checkbox"/> NYS 198.8 SOF-V</p> <p><input type="checkbox"/> NIOSH 9002 (&lt;1%)</p>	<p><b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA only)</p> <p><input type="checkbox"/> AHERA 40 CFR, Part 763</p> <p><input type="checkbox"/> NIOSH 7402</p> <p><input type="checkbox"/> EPA Level II</p> <p><input type="checkbox"/> ISO 10312</p> <p><b>TEM - Bulk</b></p> <p><input checked="" type="checkbox"/> TEM EPA NOB</p> <p><input type="checkbox"/> NYS NOB 198.4 (non-friable-NY)</p> <p><input type="checkbox"/> Chatfield SOP</p> <p><input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5</p> <p><b>TEM - Water:</b> EPA 100.2</p> <p>Fibers &gt;10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p> <p>All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p>	<p><b>TEM- Dust</b></p> <p><input type="checkbox"/> Microvac - ASTM D 5755</p> <p><input type="checkbox"/> Wipe - ASTM D6480</p> <p><input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)</p> <p><b>Soil/Rock/Vermiculite</b></p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (&lt;1%)</p> <p><input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (&lt;0.25%)</p> <p><input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (&lt;0.1%)</p> <p><input type="checkbox"/> TEM Qualitative via Filtration Prep</p> <p><input type="checkbox"/> TEM Qualitative via Drop Mount Prep</p> <p><input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC only)</p> <p><b>Other:</b></p> <p><input type="checkbox"/></p>
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Check For Positive Stop - Clearly Identify Homogenous Group      Filter Pore Size (Air Samples):  0.8µm  0.45µm

Samplers Name: Mike Mincey

Samplers Signature: *Mike Mincey*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1206-1-1 to 1206-1-7	Drywall/Joint Compound		
1206-2-1 to 1206-2-3	2' x 2' Heavy Textured Ceiling Tiles		
1206-3-1 to 1206-3-3	2' x 4' Small Pinhole Ceiling Tiles		
*1206-4-1 to 1206-4-3	Cream Baseboard Adhesive		
*1206-5-1 to 1206-5-3	Brown Baseboard Adhesive		

Client Sample # (s): 1206-1-1 - 1206-71-3      Total # of Samples: 223 - 52 NOB

Relinquished (Client): *Mike Mincey*      Date: 3/16/2018      Time: 17:00 (17)

Received (Lab): *JD*      Date: 3/19/18      Time: 9AM

Comments/Special Instructions: TEM NOB 3<sup>rd</sup> sample for sample group marked with asterisks.

① ERX 795447392448



# Asbestos Chain of Custody

## EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

1945

*Additional Pages of the Chain of Custody are only necessary if needed for additional sample information*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1206-6-1 to 1206-6-3	Carpet Adhesive		
*1206-7-1 to 1206-7-3	12" x 12" Gray Floor Tile/Mastic		
*1206-8-1 to 1206-8-3	12" x 12" Blue Floor Tile/Mastic		
*1206-9-1 to 1206-9-3	12" x 12" Red Floor Tile/Mastic		
*1206-10-1 to 1206-10-3	12" x 12" Peach Floor Tile/Mastic		
1206-11-1 to 1206-11-3	White Leveling Compound		
*1206-12-1 to 1206-12-3	12" x 12" Tan Floor Tile/Mastic		
*1206-13-1 to 1206-13-3	Tan Sink Undercoating		
*1206-14-1 to 1206-14-3	12" x 12" Light Brown Floor Tile/Mastic		
*1206-15-1 to 1206-15-3	12" x 12" Tan Streaked Floor Tile/Mastic		
*1206-16-1 to 1206-16-3	Tan Mastic on HVAC Duct Wrap		
*1206-17-1 to 1206-17-3	Gray Mastic on HVAC Duct Wrap		
*1206-18-1 to 1206-18-3	White Mastic on HVAC Duct Wrap		
*1206-19-1 to 1206-19-3	Black Mastic on HVAC Duct Wrap		
1206-20-1 to 1206-20-7	Plaster (Both Coates)		
*1206-21-1 to 1206-21-3	Brown Interior Window Caulk		
1206-22-1	TSI Pipe Insulation		
1206-23-1 to 23-5	Drywall/Joint Compound		
1206-24-1 to 1206-24-3	2' x 2' Textured Ceiling Tiles		
*1206-25-1 to 1206-25-3	12" x 12" Gray/Off White Floor Tile/Mastic & Carpet Adhesive		
*1206-26-1 to 1206-26-3	12" x 12" Blue Floor Tile/Mastic		
*1206-27-1 to 1206-27-3	Baseboard Adhesive		
1206-28-1 to 1206-28-3	Gypsum Ceiling Tiles		
*Comments/Special Instructions:			



# Asbestos Chain of Custody

## EMSL Order Number (Lab Use Only):

1945

EMSL ANALYTICAL, INC.  
LABORATORY • PRODUCTS • TRAINING

*Additional Pages of the Chain of Custody are only necessary if needed for additional sample information*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1206-29-1 to 1206-29-3	12" X 12" Off-White Floor Tile/Mastic		
*1206-30-1 to 1206-30-3	Gray Duct Mastic		
1206-31-1 to 1206-31-3	Textured Wall Surfacing Material		
*1206-32-1 to 1206-32-3	Light Gray Duct Mastic		
1206-33-1 to 1206-33-7	Drywall/Joint Compound		
*1206-34-1 to 1206-34-3	Carpet Adhesive		
*1206-35-1 to 1206-35-3	Baseboard Adhesive		
1206-36-1 to 1206-36-3	2' x 4' Textured Ceiling Tiles		
1206-37-1 to 1206-37-3	2' x 2' Textured Ceiling Tiles		
1206-38-1 to 1206-38-3	2' x 2' Rough Textured Ceiling Tiles		
*1206-39-1 to 1206-39-3	Black Mastic on HVAC Duct Wrap		
*1206-40-1 to 1206-40-3	12" x 12" Gray on Brown Floor Tile/Mastic		
*1206-41-1 to 1206-41-3	12" x 12" Gray w/White Floor Tile/Mastic		
*1206-42-1 to 1206-42-3	12" x 12" Beige w/Tan Floor Tile/Mastic		
*1206-43-1 to 1206-43-3	12" x 12" White w/Black Floor Tile/Mastic		
*1206-44-1 to 1206-44-3	Residual Black Floor Tile Mastic		
*1206-45-1 to 1206-45-3	Red Fire Stop		
1206-46-1 to 46-2	Mudded Elbow		
*1206-47-1 to 1206-47-3	Floor Underfelt (Old)		
*1206-48-1 to 1206-48-3	Floor Underfelt (Newer)		
*1206-49-1 to 1206-49-3	Floor Underfelt (Red)		
1206-50-1	Residual Floor Penetration TSI		
*1206-51-1 to 1206-51-3	Expansion Joint Material		
*Comments/Special Instructions:			



## Asbestos Chain of Custody

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

1945

**EMSL ANALYTICAL, INC.**  
LABORATORY • PRODUCTS • TRAINING

*Additional Pages of the Chain of Custody are only necessary if needed for additional sample information*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
*1206-52-1 to 1206-52-3	Timber Column Felt		
*1206-53-1 to 1206-53-3	Expansion Joint Felt (Black)		
*1206-54-1 to 1206-54-3	Expansion Joint Felt (Red)		
*1206-55-1 to 1206-55-3	Fire Door Material		
1206-56-1 to 1206-56-3	Stucco Window Fill		
*1206-57-1 to 1206-57-3	Stair Tread Adhesive		
*1206-58-1 to 1206-58-3	12" x 12" Gray Floor Tile		
*1206-59-1 to 1206-59-3	Interior Door Caulk		
*1206-60-1 to 1206-60-3	Exterior Door/Window Caulk		
*1206-61-1 to 1206-61-3	Exterior White Window Caulk		
1206-62-1 to 1206-62-5	Textured Exterior Stucco		
*1206-63-1 to 1206-63-3	Roof Core		
*1206-64-1 to 1206-64-3	Roof Flashing		
*1206-65-1 to 1206-65-3	White Roofing Caulk		
*1206-66-1 to 1206-66-3	Gray Roof Surface Coating		
*1206-67-1 to 1206-67-3	Gray Flashing Mastic		
*1206-68-1 to 1206-68-3	Black Roof Patch Mastic		
1206-69-1 to 1206-69-3	Red Roof Patch Mastic		
*1206-70-1 to 1206-70-3	Black Flashing Mastic		
*1206-71-1 to 1206-71-3	White Flashing Mastic		
*Comments/Special Instructions:			

## Appendix K

### Personnel Certifications

# SCDHEC ISSUED

## Asbestos ID Card

**Michael Mincey**



<b>SUPERAHERA</b>	<b>SA-01424</b>	<b>01/30/19</b>
<b>CONSULTMP</b>	<b>MP-00161</b>	<b>01/29/19</b>
<b>AIRSAMPLER</b>	<b>AS-00272</b>	<b>01/30/19</b>

Expiration Date:

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

**YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.**

For information of corrections contact: SCDHEC – Asbestos Section  
2600 Bull Street  
Columbia, SC 29201  
(803) 898-4289

# SCDHEC ISSUED

## Asbestos ID Card

**Glynn M Ellen**



		Expiration Date:
<b>SUPERAHERA</b>	<b>SA-00455</b>	<b>01/30/19</b>
<b>CONSULTPD</b>	<b>PD-00098</b>	<b>06/09/18</b>
<b>CONSULTMP</b>	<b>ASB-22641</b>	<b>01/29/19</b>
<b>AIRSAMPLER</b>	<b>AS-00079</b>	<b>01/30/19</b>

This card is nontransferable and considered invalid if loaned or given to another person for identification. This card will also be invalid if altered or defaced. This card is property of SCDHEC. It must be returned to the department if the holder's accreditation is revoked or if this card is invalidated. Any person performing regulated asbestos activities without current accreditation shall be subject to legal sanction. This card must be returned upon expiration and/or issuance of a new card.

**YOU MUST HAVE THIS IDENTIFICATION CARD WITH YOU ON THE JOB.**

For information of corrections contact: SCDHEC – Asbestos Section  
2600 Bull Street  
Columbia, SC 29201  
(803) 898-4289

## Appendix L

### Regulatory Summary

# **Asbestos Regulatory Information**

## **Renovations & Demolitions**

### **Definitions**

**Renovation** means altering a facility or one or more facility components in any way, including the stripping or removal of regulated asbestos-containing materials (RACM) from a facility component. "Remodeling" is considered renovation.

**Demolition** is wrecking or taking out any load-supporting structural member of a facility together and any related handling operations. Structural burns are prohibited by State Open Burning Regulations.

### **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. Contact the SCDHEC Asbestos Section for additional information.

All asbestos-containing materials must be removed from a facility prior to demolition. Only the following asbestos-containing materials (ACM) may be left in place during demolition:

- ACM on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition
- RACM that was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, cannot be safely removed. If not removed for safety reasons, all exposed RACM and any asbestos-contaminated debris must be treated as regulated asbestos-containing waste material. Category I and Category II non-friable mastic, glue, and adhesive ACM that is not friable or in poor condition, and where the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition operations.
- Category I and Category II non-friable mastic, glue, and adhesive ACM that is not friable or in poor condition, and where the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition operations.

**The facility owner and the renovation or demolition contractor are both responsible for ensuring compliance with these regulations.**

## **Building Inspections**

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 material, either friable or non-friable, on interior and exterior portions of the facility. The inspector must also comply with the procedures specified in Regulation 61-86.1 VI D. 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 Regulation 61-86.1 VI C. 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 DHEC as an Asbestos Project Designer.

### **Non-Friable Asbestos Containing Materials**

Please note that when it can reasonably be expected that non-friable materials will become friable during removal, that these materials must be considered friable from the beginning. If non-friable Asbestos Containing Materials (ACM) becomes friable during an abatement project, the removal becomes subject to the same requirements as friable materials, including training, licensing, notification, and work practices.

- Material should always be lowered to the ground carefully. Throwing or dropping non-friable ACM to the ground or into a truck will cause the material to become friable.
- Materials should be kept wet or misted with water during removal to minimize potential fiber release. **NOTE: The use of water is only a control measure and by no means prevents a material from becoming friable.**
- Once removed, materials may be placed in 6-mil polyethylene bags or drums or wrapped with 6-mil polyethylene sheeting. Additional water may be added to ensure thorough wetting, but do not add so much that the bag or wrapping breaks when lifted.
- Debris already on the ground should be wet and either collected manually or gathered with a shovel and bagged for disposal. These materials can be potential sources of airborne asbestos fiber releases.
- South Carolina Regulation 61-86.1 requires that containers (bags, drums, wrapped components) holding asbestos waste must be labeled with the following: **DANGER -**

**CONTAINS ASBESTOS FIBERS - AVOID CREATING DUST - CANCER AND LUNG DISEASE HAZARD.**

- Materials should be taken to a landfill as soon as possible but may be stored temporarily in a secure area subject to Departmental approval. Transport the materials so as to prevent them from leaking, spilling, or blowing off the vehicle.
- You should contact the landfill directly to make sure it will accept the material. You must obtain written approval from DHEC in advance for the disposal. You can get this approval by writing to the following address:

**South Carolina Department of Health and Environmental Control  
Attn: Bureau of Air Quality/Asbestos Section  
2600 Bull Street Columbia, SC 29201**

Be sure to include the following:

1. the address where the material is to be removed;
2. a brief description of the content (cement-like tiles, asphaltic shingles, etc.);
3. the volume of waste in cubic yards or the area in square feet of material removed, and;
4. the name and location of the landfill which has agreed to accept the waste.

*Please remember to include your name, return address, and phone number.*

- **DO NOT BURN OR RECYCLE** any asbestos-containing or asbestos-contaminated materials.

The Occupational Safety and Health Administration (OSHA) has rules for workers affected by asbestos-containing materials. These rules must be complied with by all contractors and facility owners and include specific work practices, respiratory protection, and asbestos training requirements, **even for activities involving only non-friable asbestos-containing materials**. Contact the Department of Labor at (803) 896-7665 for details.

### **Notification of Renovations & Demolitions**

Prior to removing regulated asbestos-containing materials, [written notification](#) must be submitted to DHEC (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 DHEC *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.

## Building Inspection Report Directions

As required by the National Emission Standard for Hazardous Air Pollutants (NESHAP) and Regulation 61-86.1, an owner/operator shall ensure that a building inspection, to detect the presence of asbestos-containing material (ACM), has been performed prior to any renovation or demolition activity at a regulated facility.

Under 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.

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 DHEC 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, 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, 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.

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 Regulation 61-86.1, surfacing materials on exterior and interior portions of a facility shall be sampled according to procedures outlined in 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 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 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 material (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.

**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 DHEC issued asbestos building inspector or management planner license.

### **Things to Note:**

- At no time will negative assumptions about a suspect material's content be acceptable. There are only two acceptable options:
  1. Positive assumptions of suspect materials or
  2. Sampling of suspect materials per the procedures specified in 40 CFR 763.86
- A homogenous area is considered not to contain ACM only if the results of all samples required to be collected from the area are one percent or less.
- Bulk samples shall not be composited for analysis.

- In a multi-unit building, each separate room in each part of the building or areas affected by the renovation or demolition operation shall be inspected to confirm and quantify ACM homogeneous areas for sampling purposes.
- DHEC will not accept an asbestos building inspection or written report for any structure from an employee of an abatement company also involved in the removal of asbestos-containing materials from that structure, unless the licensed inspector is an employee of an entity regulated under Regulation 61-86.1, Section XX, Industrial Manufacturing and Electrical Generation Facilities.
- An asbestos building inspector shall not participate in the analysis of the bulk samples he or she has collected.
- Destructive sampling techniques shall be utilized.
- Material Safety Data Sheets (MSDS), statements from the manufacturer, and architecture signoff will not be accepted as proof that a building product contains no asbestos, except in cases where the owner can verify the direct correlation of the building product to the MSDS, statements from the manufacturer, and/or architecture signoff documents. DHEC reserves the right to reject documentation that it deems unacceptable.

## **Appendix M**

### **Abatement Project Forms**





**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><b>APPLICATIONS MUST BE SUBMITTED WITH FEES PRIOR TO THE SCHEDULED START DATE AS FOLLOWS:</b>          NESHAP PROJECTS: 10 WORKING DAYS          SMALL PROJECTS: 4 WORKING DAYS          MINOR PROJECTS: 2 WORKING DAYS</p>	<p><b>FEE SCHEDULE FOR FRIABLE ASBESTOS-CONTAINING MATERIALS:</b>          10 CENTS PER SQUARE FOOT OR LINEAR FOOT          MINIMUM FEE OF \$25.00          MAXIMUM FEE OF \$1000.00</p>
--	--

Non-Friable (NESAP-sized) Projects: 4 working days. No fee for non-friable ACM.  
 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 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>



# Asbestos Waste Shipment Record

**1. SCDHEC ASBESTOS ABATEMENT PROJECT LICENSE:****Generator Information**

2. Waste Generator/Owner Name & Address:	Work Site Name & Physical Address:	Waste Generator/Owner Telephone Number ( )
3. Abatement Contractor Name & Address:		Abatement Contractor Telephone Number ( )
4. Name of waste disposal site (WDS), mailing address, and physical site location:		WDS Telephone Number: ( )
5. Description of Waste Materials (please circle): Friable (Regulated) / Nonfriable (Nonregulated)	6. Bags of Containers: No. Type _____ Drums _____ Bags _____ Bulk Load	7. Total Quantity: m3 (yd3)
8. Special handling instructions & additional information:		
9. Generator's/Contractor's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled. The contents are in all respects in proper condition for transport by highway according to applicable international and government regulations.		

Print Name:	Signature:	Date:
-------------	------------	-------

**Transporter Information (Acknowledgment of Receipt of Materials):**

10. Name, title, address, telephone number:	Signature:	Date:
11. Name, title, address, telephone number:	Signature:	Date:

**Disposal Site Operator**

12. Discrepancy:	<u>Bags or Containers</u>	<u>Total Quantity</u>
13. Waste Disposal Site Owner or Operator certification of receipt of asbestos materials covered by this manifest except as noted in item 11.		
Print Name:	Signature:	Date:

Please forward a completed copy of this record to: SCDHEC, Bureau of Air Quality, Asbestos Section, 2600 Bull Street, Columbia, SC 29201  
(803) 898-4389 office. (803) 898-4281 fax.

## **LEAD-BASED PAINT INVESTIGATION REPORT**

**UNIVERSITY OF SOUTH CAROLINA  
FORMER SCE&G COMPOUND  
MAIN 2-STORY BUILDING (BUILDING 1)  
1206 FLORA STREET  
COLUMBIA, SOUTH CAROLINA**

### **PREPARED FOR:**



**UNIVERSITY OF  
SOUTH CAROLINA**

Mr. Christopher Geary  
University of South Carolina  
1300 Pickens Street  
Columbia, South Carolina 29201

### **PREPARED BY:**

F&ME Consultants  
1825 Blanding Street  
Columbia, South Carolina 29201

**April 4, 2018**

F&ME Project No.: E5700.190

# TABLE OF CONTENTS

1.	<b>Executive Summary .....</b>	<b>1</b>
2.	<b>Lead-Based Paint Background Information .....</b>	<b>3</b>
3.	<b>Introduction.....</b>	<b>3</b>
4.	<b>Investigation Results .....</b>	<b>4</b>
5.	<b>Recommendations .....</b>	<b>5</b>
	<b>Appendices.....</b>	<b>7</b>

Appendix A – Site Vicinity Map

Appendix B – General Building Plans

Appendix C – XRF Data

Appendix D – Site Photographs of Lead Positive Items

Appendix E – Personnel Certifications



# 1. EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. This report should be reviewed in its entirety prior to making any decisions regarding this project.

F&ME Consultants has completed a Lead-Based Paint (LBP) Investigation of multiple structures associated with the former SCE&G Compound (Site) located at 1206 Flora Street in Columbia, SC for the University of South Carolina (USC). This report is for the investigation of the main 2-story former mill structure (Building 1) found on the compound that fronts Flora Street. This LBP Investigation was performed on March 13<sup>th</sup> through March 15, 2018 in anticipation of planned renovation activities to both the interior and exterior of the building. Appendix A – Site Vicinity Map is provided to show the location of Building 1. Appendix B – General Building Plans, are provided to show the building lay-out and locations of XRF scans taken throughout the building.

Per an agreed upon scope of work, this LBP Investigation was conducted to identify, analyze, and assess the condition of any LBP or coated interior and exterior building components along with the roof which may be affected by renovation activities. Additionally, F&ME agreed to make recommendations regarding proper handling and/or disposal methods if any LBP or coatings were identified. This investigation includes both a visual evaluation of the physical condition of painted materials as well as quantitative testing of random surfaces using a Thermo Scientific Niton X-Ray Fluorescence (XRF) Portable Analyzer. The XRF documents the concentration of lead, if any, in the overall paint or coating. Building components were scanned with a Niton XRF analyzer (Model #XLP 300A, Serial #18185) with a limit of detection (LOD) of 0.01 mg/cm<sup>2</sup>.

LBP is regulated by multiple government agencies, and each requires different response actions when the concentration of lead exceeds specified thresholds. The Occupational Safety and Health Administration (OSHA) regulates worker exposure to lead dust, and as a result considers materials with any lead content to be a potential hazard. Additionally, South Carolina Department of Health and Environmental Control (SCDHEC) requires some waste materials to be disposed of at specific disposal facilities which are able to manage this waste. Appendix C – XRF Data, is provided to present the data in a user-friendly format. Items in red text contain lead in concentrations regulated by SCDHEC and these materials must be addressed upon disposal. Items in blue and red text contain lead in concentrations that must be considered a potential for worker exposure by OSHA.

The results from the XRF quantitative testing indicate that lead is present in paint and/or coatings on building components associated with the subject structure. The components found to equal or exceed the threshold for lead (0.7 mg/cm<sup>2</sup>) include the following:

- Paint on interior brick and plaster walls
- Paint on interior wood columns - throughout the first and second floors
- Metal cap plate supports for wood columns - throughout the first and second floors
- Yellow painted metal shelving - first-floor main warehouse area (Room 100)
- Yellow striping paint on concrete floor - first-floor main warehouse area (Room 100)

- Tan ceramic baseboard tiles - bathrooms and janitor closet
- Tan ceramic wall tile in shower - Room 238A
- Grey painted exterior metal staircase - west side of the building
- Yellow painted metal dock edge protector - rear loading dock
- Yellow painted metal security bars on exterior window - Room 102B
- Yellow painted hoist/crane - laydown yard on west side of the building

We appreciate the opportunity to assist you in this project. If you have any questions or require additional information, please feel free to contact our office at (803) 254-4540.

Sincerely,

F&ME CONSULTANTS



**Jeffrey S. Leary**

S.C. Lead-Based Paint Inspector

EPA Certification No. SC-I-18721-3 (Exp. 07/29/18)



**Glynn M. Ellen**

Environmental Department Manager

## 2. LEAD-BASED PAINT BACKGROUND INFORMATION

Housing and Urban Development (HUD) defines “LBP” as any coating that has a lead concentration of 1.0 milligrams of lead per square centimeter ( $1.0 \text{ mg/cm}^2$ ) or greater, or if the lead concentration is greater than one half of a percent ( $> 0.5\%$ ) by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 90 ppm (0.009% by weight). In 1978, the CPSC banned the sale of LBP to consumers, and banned its application in areas where consumers have direct access to painted surfaces. Both the CPSC and HUD definitions of lead-containing paint are aimed at protecting the general population from exposure to lead in the residential setting.

In contrast, the mission of OSHA with respect to lead-containing paint is to protect workers during construction activities that may generate elevated airborne lead concentrations. OSHA states that construction work (including renovation, maintenance, and demolition) carried-out on structures coated with paint having lead concentrations lower than the HUD or CPSC can still result in airborne lead concentrations in excess of regulatory limits. For this reason, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead ( $\geq 0.01 \text{ mg/cm}^2$ ) may pose a substantial exposure hazard during construction work, depending upon the work performed. Therefore, in these situations, OSHA guidelines and safety procedures should be followed. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air ( $50 \text{ ug/m}^3$ ) averaged over an 8-hour period.

Additionally, SCDHEC requires the use of specific waste disposal sites if materials contain lead concentrations greater than or equal to ( $\geq$ )  $0.7 \text{ mg/cm}^2$ . It is imperative that these regulations be considered if any present or future renovations and/or demolition activities will impact LBP-containing building materials or equipment. Due to the anticipated impact on the building’s components from the planned renovation activities, SCDHEC lead disposal requirements were used as the threshold for this Investigation.

## 3. INTRODUCTION

It is F&ME’s understanding that renovations are in the planning stages for Building 1, and currently the scope of the renovations is undefined. It is also our understanding that the renovations will likely impact the entire structure, will impact both the interior and exterior of the building, and will potentially include the replacement of the existing roof system. This LBP Investigation was conducted to identify, analyze, and assess the condition of any LBP or coated interior and exterior building components, including the roof, that may be affected by renovation activities. Where LBP or coatings have been identified, recommendations regarding proper handling and/or disposal methods are provided.

The existing building structure, Building 1, is an approximate 65,000 square foot, 2-story structure located at 1206 Flora Street, in Columbia SC. The structure was originally the location for the Capital City Mills and in recent years was owned and operated by SCE&G. USC took possession of the property in March of 2018. The original building construction is believed to have occurred near the turn of the century. A historic document found online indicated Capital City Mills being incorporated in 1900.



*Photo 1. University of South Carolina, former SCE&G Compound, Main Building (Building 1) located at 1206 Flora Street, Columbia SC.*

Building 1 is a 2-story structure originally constructed with masonry brick and concrete, with wood columns and beams throughout. There have been alterations or renovations made to the structure over its history that include more current construction. Two (2) all metal additions were noted during the investigation on the northwest and southwest corners of the building. It appeared that an earlier renovation included the addition of the stairwells at the front entrance and northwest corner of the building. The stairwells were added before the metal addition on the northwest corner of the building. It also appears that the entire second floor was renovated, and all new finishes were installed at some point in time. Based on the condition of the building materials, the two (2) areas with offices found on the first-floor level were likely renovated earlier than the renovations on the second floor of the building. The roof system for the main structure consists of a commercial TPO membrane roof and flashing. The additions at the northwest and southwest corners have metal roof systems.

The interior spaces of the building consisted of drywall, plaster, wood, masonry block and brick walls, carpet and various 12” x 12” floor tiles over concrete and/or wood flooring, and suspended drop ceiling system. The main warehouse area (Room 100) on the first floor is opened to the underside of the floor of the second-floor level. See Appendix A – Site Vicinity Map, for the location of the structure. See Appendix B –General Building Plans, for a layout of the building.

## 4. INVESTIGATION RESULTS

F&ME’s LBP Investigation sampling protocol consisted of randomly selecting interior and exterior building components and scanning these components with a Thermo Scientific Niton X-Ray Fluorescence (XRF) Portable Analyzer (Model XLp300A, Serial #18185, Isotope 1: Cd109, 40mCi, source date 09/01/2015). The components scanned with the XRF include the following: walls, ceilings, columns, beams, doors and door components, windows and window components, flooring,

baseboards, porcelain sinks, toilets, and urinals, piping, staircasing and components, floor striping, roof components, etc.

The XRF results indicate that LBP is present within the subject building structure. The components found to contain LBP include the following:

- Paint on interior brick and plaster walls
- Paint on interior wood columns - throughout the first and second floors
- Metal cap plate supports for wood columns - throughout the first and second floors
- Yellow painted metal shelving - first-floor main warehouse area (Room 100)
- Yellow striping paint on concrete floor - first-floor main warehouse area (Room 100)
- Tan ceramic baseboard tiles - bathrooms and janitor closet
- Tan ceramic wall tile in shower - Room 238A
- Grey painted exterior metal staircase - west side of the building
- Yellow painted metal dock edge protector - rear loading dock
- Yellow painted metal security bars on exterior window - Room 102B
- Yellow painted hoist/crane - laydown yard on west side of the building

For more information regarding the specific descriptions and locations of the items that were scanned, refer to the Appendix C – XRF Data. Also, Appendix D – Site Photographs, shows the materials that were found to be coated or painted with LBP greater than or equal to ( $\geq$ ) 0.7 mg/cm<sup>2</sup>. Appendix E - Personnel Certification, is included to show F&ME qualifications with regards to LBP Investigations.

## 5. RECOMMENDATIONS

The results, conclusions and recommendations from this 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. This report has been prepared exclusively for USC and shall not be disseminated in whole or part to other parties without prior consent from USC or F&ME Consultants, Inc. No other environmental issues were addressed as part of this report.

LBP was identified in concentrations above both SCDHEC and OSHA limits on building materials listed in *Section 4. Investigation Results*. It is important to ensure that the debris generated from the renovation activities is handled and disposed of appropriately. The proper handling and disposal procedures depend on the type of substrate (e.g., metal, wood, masonry block, etc.). In order to reduce and/or eliminate the generation of lead-containing dust, and residue, it is recommended that cutting, sanding and grinding be kept to a minimum, and to the extent practicable, the substrate materials should be removed intact. Metal components painted with and/or containing lead, such as the grey painted exterior staircase or the yellow painted loading dock edge protectors may be recycled, if they are taken to a recycling facility that accepts lead painted and/or lead-containing material.

During this investigation, paint chips from the brick and plaster interior walls that tested positive for lead were noted on the concrete floor along the perimeter walls of the first-floor main warehouse area (Room 100). During renovation activities, these paint chips need to be collected following OSHA regulations and procedures along with USC protocol for handling lead-based paint items and debris/paint chips. Once the paint chips are collected and containerized, lab analysis should be performed to determine the proper disposal method.

Components found to contain lead should be handled appropriately. It is recommended that work tasks which require grinding, sanding, cutting torch, or other disturbance of the LBP surfaces identified herein be performed in accordance with federal regulations pertaining to worker protection from exposure to LBP. When lead containing items are disturbed or begin to decay they become a concern with regard to human health and the environment. The typical routes of exposure to lead are through the inhalation or ingestion of lead-contaminated materials. Minimal risk of exposure exists where the lead-containing paint and coating are intact (e.g., has not been aerosolized, free of chipping or flaking, etc.).

As stated previously, OSHA regulates any measurable level of lead ( $\geq 0.01 \text{ mg/cm}^2$ ), as it may pose a substantial exposure hazard to workers. Therefore, in these situations, OSHA regulations and safety procedures should be followed. These regulations also list the proper personal protective equipment to be used by the workers disturbing the LBP items and the requirements for personal air monitoring. OSHA's exposure action level (AL) for lead, regardless of respirator use, is an airborne concentration of  $30 \mu\text{g/cm}^3$ , averaged over an eight-hour period. The action level (AL) is the level at which an employer must begin specific compliance activities as outlined in OSHA's lead standards. By OSHA standards and regulations, the employer shall ensure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air ( $50 \mu\text{g/m}^3$ ) averaged over an 8-hour period which is the permissible exposure level (PEL).

SCDHEC regulates the proper disposal of LBP and associated debris. SCDHEC defines two types of LBP debris. The first is LBP *waste*, which is defined as material such as wood, brick and metal that is painted with LBP. The other is LBP *residue* which is defined as residue that is generated from the removal (e.g., scraped, chipped, sandblasted, or chemical) of LBP from a structure. LBP *waste* that comes from a commercial or residential facility may be disposed of in either a class 2 or 3 landfill, while LBP *residue* from a commercial facility must have a toxicity characteristic leaching procedure (TCLP) analysis to determine the lead content. TCLP analysis is used to determine whether or not a waste is a characteristic hazardous waste due to leachability under the South Carolina Hazardous Waste Management Regulations. LBP *residue* with a TCLP analysis result greater than or equal to five milligrams per liter ( $\geq 5 \text{ mg/l}$ ) lead must be disposed of in a Subtitle C landfill (Hazardous Waste). However, LBP *residue* from a commercial facility with a TCLP analysis result less than five milligrams per liter ( $< 5 \text{ mg/l}$ ) lead is required to be disposed of in a Class 3 landfill.

Should any hidden and/or inaccessible components suspected to have LBP be encountered during renovation activities, the contractor performing the work is advised to stop work, follow proper procedures and precautions relating to LBP, and contact F&ME Consultants at (803) 254-4540 for an immediate response action.

## APPENDICES

Appendix A – Site Vicinity Map

Appendix B – General Building Plans

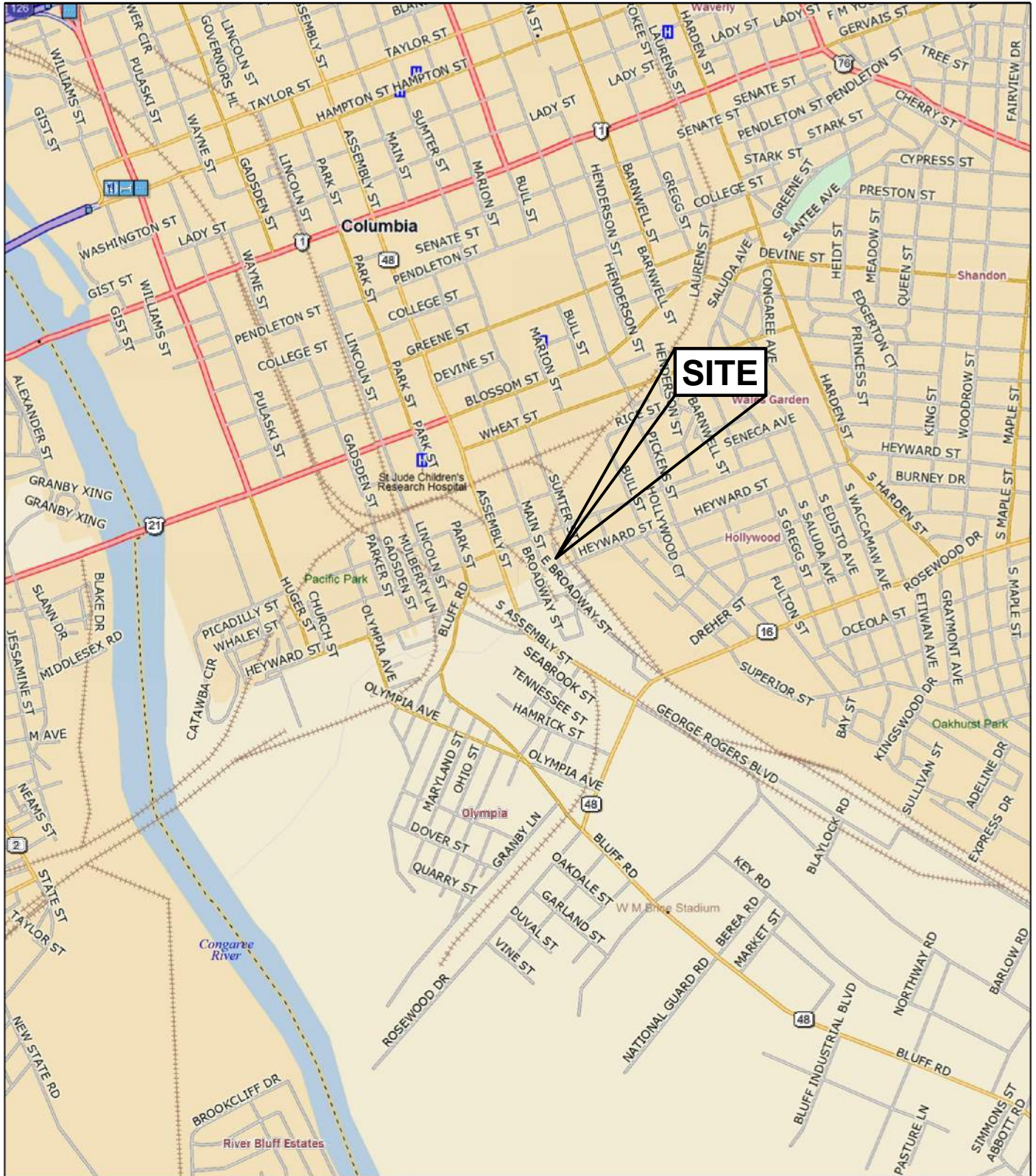
Appendix C – XRF Data

Appendix D – Site Photographs of Lead Positive Items

Appendix E – Personnel Certification



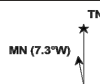
**Appendix A**  
**Site Vicinity Map**



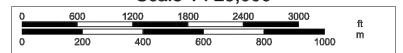
Data use subject to license.

© DeLorme. DeLorme Street Atlas USA© 2009.

www.delorme.com



Scale 1 : 25,000



1" = 2,083.3 ft Data Zoom 13-0

FIGURE  
NUMBER:

1

F&ME CONSULTANTS  
PROJECT NUMBER:

E5700.190

**Lead-Based Paint Investigation  
Former SCE&G Complex  
1206 Flora Street, Columbia, SC 29201  
Appendix A - Site Location Plan**

Prepared for:  
Facilities Planning and Construction  
743 Greene Street  
Columbia, SC 29208

**F&ME**  
CONSULTANTS

3112 Devine Street  
Columbia, SC 29205

ORIGINAL:  
March 23, 2018

REVISIONS:

1  
2  
3

SCALE  
As Shown

DRWN. BY: CTC  
CHKD. BY: JSL  
APPR. BY: GME

NOTES:

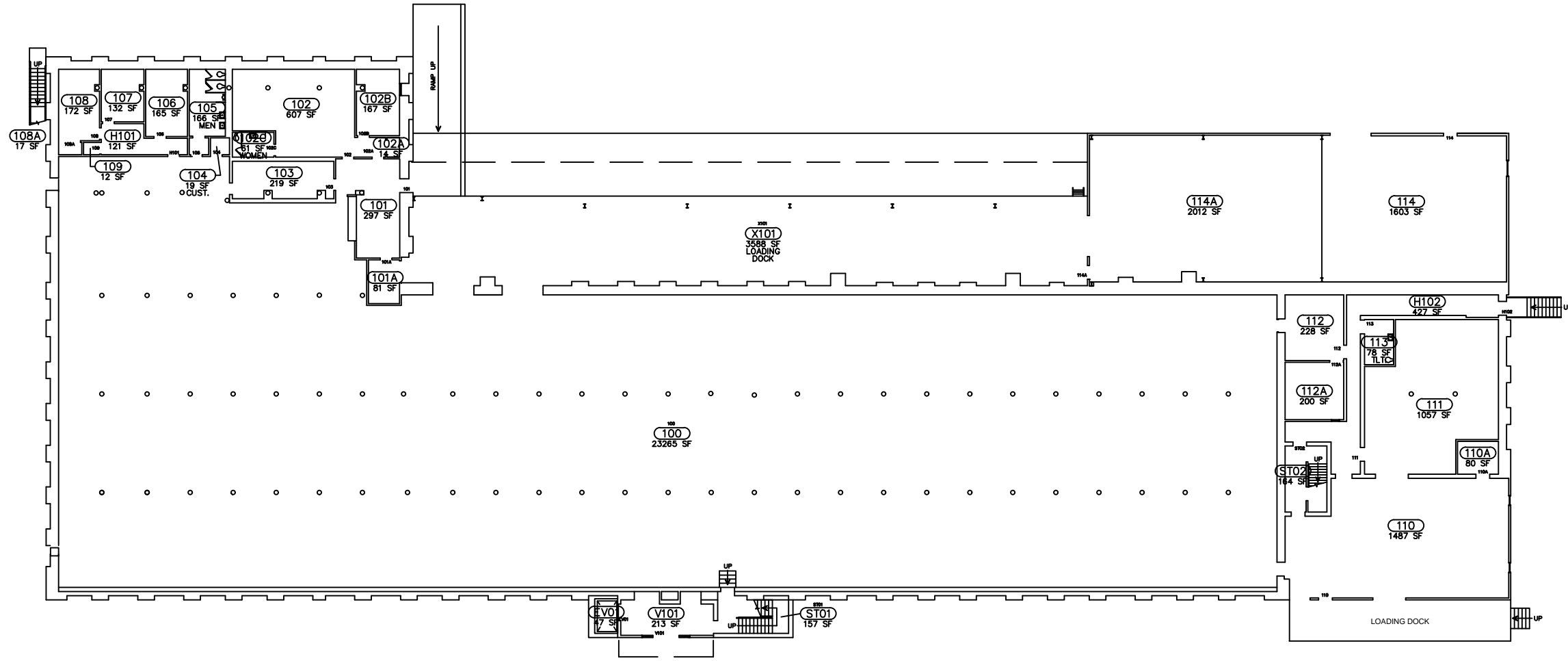
## **Appendix B**

### **General Building Plans**


B

C

D



A


1 A1 **FIRST FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

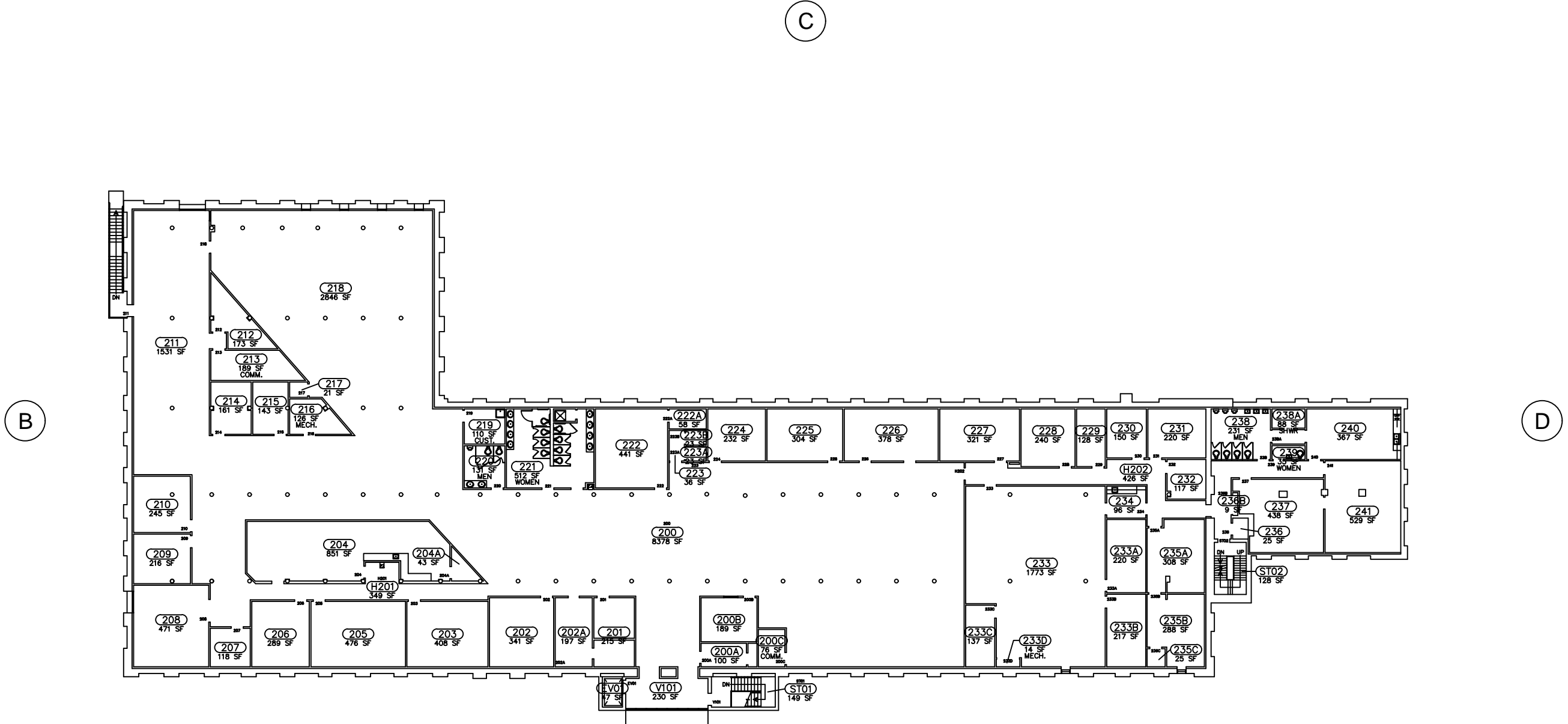
DRAWN BY: MSM	APPROVED BY: GME
CHECKED BY: JSL	DATE: March 23, 2018
REVISIONS:	SCALE:
1	
2	
3	
NOTES:	

**F&ME**  
 CONSULTANTS  
 GEOTECHNICAL - ENVIRONMENTAL - MATERIALS  
 3112 Devine Street  
 COLUMBIA, SC 29205

**Lead-Based Paint Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix B - General Building Plan**  
 Prepared for:  
 Facilities Planning and Construction  
 743 Greene Street  
 Columbia, SC 29208

F&ME CONSULTANTS  
 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**2**




1 A2 **SECOND FLOOR PLAN - 1"=16'**  
 SCALE: 1/16" = 1'-0"

DRAWN BY: MEM	APPROVED BY: GME
CHKD BY: JSL	APPROVED BY: GME
ORIGINAL: March 23, 2018	SCALE: _____
REVISIONS:	NOTES:
1 _____	1 _____
2 _____	2 _____
3 _____	3 _____

**F&ME**  
 CONSULTANTS  
 GEOTECHNICAL - ENVIRONMENTAL - MATERIALS  
 3112 Devine Street  
 COLUMBIA, SC 29205

**Lead-Based Paint Investigation**  
**Former SCE&G Complex - Main 2-Story Structure**  
 1206 Flora Street, Columbia, SC 29201  
**Appendix B - General Building Plan**  
 Prepared for:  
 Facilities Planning and Construction  
 743 Greene Street  
 Columbia, SC 29208

F&ME CONSULTANTS  
 PROJECT NUMBER:  
**E5700.190**

FIGURE NUMBER:  
**3**

## Appendix C

### XRF Data

# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
1		Shutter Calibrate					NA
2			Calibrate				0.9
3			Calibrate				0.7
4			Calibrate				1.2
5			Calibrate				0.7
6	Ceiling	Wood	A	Peeling	Cream	200	< LOD
7	Ceiling	Wood	A	Peeling	Cream	200	< LOD
8	Ceiling	Wood	A	Peeling	Cream	200	< LOD
9	Beam	Wood	A	Peeling	Cream	200	< LOD
10	Beam	Wood	A	Peeling	Cream	200	0.14
11	Column	Wood	A	Poor	Cream	200	2.9
12	Wall	Drywall	A	Intact	Blue	200	< LOD
13	Wall	Drywall	C	Intact	Blue	200	< LOD
14	Wall	Drywall	C	Intact	Blue	200	< LOD
15	Wall	Drywall	C	Intact	Wallpaper	221	< LOD
16	Sink	Porcelain	B	Intact	White	221	< LOD
17	Toilet	Porcelain	D	Intact	White	221	< LOD
18	Floor	Ceramic Tile	D	Intact	Grey	221	< LOD
19	Baseboard	Ceramic Tile	B	Intact	Grey	221	< LOD
20	Partition wall	Wood	D	Intact	Grey	221	< LOD
21	Door	Wood	A	Intact	Grey	221	< LOD
22	Door Casing	Metal	A	Intact	Grey	221	< LOD
23	Ceiling Track	Metal	A	Intact	White	221	< LOD
24	Urinal	Porcelain	C	Intact	White	220	< LOD
25	Sink counter	Wood	A	Intact	Blue	220	< LOD
26	Wall	Drywall	C	Intact	Blue	218	< LOD
27	Win. Sill	Drywall	C	Intact	Blue	218	< LOD
28	Win. Casing	Metal	C	Intact	Brown	218	< LOD
29	Column	Wood	Center	Fair	Tan	218	< LOD
30	Column	Wood	Center	Fair	Tan	218	5.7
31	Column	Wood	Center	Fair	Tan	218	< LOD
32	Column	Wood	Center	Fair	Tan	218	< LOD
33	Column	Wood	Center	Fair	Tan	218	3.7
34	Column	Wood	Center	Fair	Tan	218	3.4
35	Beam	Wood	Center	Fair	Tan	218	< LOD
36	Beam	Wood	Center	Fair	Tan	218	< LOD
37	Column Top Plate	Metal	Center	Poor	Tan	218	11.7
38	Beam	Metal	Center	Peeling	Tan	218	< LOD
39	Shelf	Wood	B	Intact	Cream	212	< LOD
40	Shelf	Wood	B	Intact	Cream	212	< LOD
41	Wall	Drywall	A	Intact	Cream	212	< LOD
42	Door	Wood	A	Intact	Blue	212	< LOD
43	Door Casing	Metal	A	Intact	Blue	212	< LOD
44	Fan Coil	Metal	D	Intact	Cream	213	< LOD

Blue text indicates any concentrations of LBP which OSHA considers a potential exposure risk when removed.

Red text indicates concentrations of LBP that have specific disposal requirements regulated by SCDHEC.



# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
45	Wall	Drywall	D	Intact	Cream	213	< LOD
46	Wall	Drywall	B	Intact	White	211	< LOD
47	Door	Metal	B	Intact	Blue	211	< LOD
48	Door Casing	Metal	B	Intact	Blue	211	< LOD
49	Door	Metal	D	Intact	Blue	211	< LOD
50	Wall	Drywall	A	Intact	White	208	< LOD
51	Floor Heat Unit	Metal	B	Intact	Tan	208	< LOD
52	Door	Wood	D	Intact	Blue	208	< LOD
53	Door Casing	Metal	D	Intact	Blue	208	< LOD
54	Wall	Drywall	C	Intact	Blue	204	< LOD
55	Wall	Wood	Center	Intact	Blue	202	< LOD
56	Computer Wire Rack	Metal	Center	Intact	Grey	202	< LOD
57	Wall	Drywall	C	Intact	Cream	226	< LOD
58	Wall	Drywall	A	Intact	Cream	226	< LOD
59	Door	Wood	A	Intact	Cream	226	< LOD
60	Door Casing	Metal	A	Intact	Cream	226	< LOD
61	Wall	Drywall	A	Intact	Cream	223C	< LOD
62	Shelf	Wood	B	Intact	Cream	223C	< LOD
63	Door	Wood	D	Intact	Cream	223C	< LOD
64	Door Casing	Metal	D	Intact	Cream	223C	< LOD
65	Wall	Cinder Block	D	Intact	Cream	236	< LOD
66	Wall	Drywall	B	Intact	Cream	236	< LOD
67	Door Casing	Metal	B	Intact	Cream	236	< LOD
68	Door	Wood	B	Intact	Varnish	236	< LOD
69	Floor	Ceramic Tile	B	Intact	Yellow	236	< LOD
70	Baseboard	Ceramic Tile	B	Intact	Tan	236	1
71	Janitor Sink Splash	Ceramic Tile	C	Intact	White	236	0.3
72	Shelf	Wood	D	Intact	Tan	236	< LOD
73	Sink	Porcelain	C	Intact	White	238	< LOD
74	Urinal	Porcelain	C	Intact	White	238	< LOD
75	Toilet	Porcelain	C	Intact	White	238	< LOD
76	Wall	Drywall	C	Intact	Cream	238	< LOD
77	Partition	Metal	C	Intact	Cream	238	0.07
78	Floor	Ceramic Tile	C	Intact	Yellow	238	< LOD
79	Floor	Ceramic Tile	C	Intact	Yellow	238	< LOD
80	Baseboard	Ceramic Tile	C	Intact	Tan	238	0.9
81	Shower wall	Ceramic Tile	C	Intact	Tan	238A	1
82	Shower floor	Ceramic Tile	C	Intact	Yellow	238A	< LOD
83	Wall	Cinder Block	D	Intact	Cream	ST02	< LOD
84	Wall	Brick	D	Intact	Cream	ST02	< LOD
85	Stair Stringer	Metal	Center	Intact	Cream	ST02	0.09
86	Stair Riser	Metal	Center	Intact	Cream	ST02	0.08
87	Newel Post	Metal	Center	Intact	Cream	ST02	0.4
88	Door	Metal	C	Intact	Brown	ST02	< LOD

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
89	Door Casing	Metal	C	Intact	Brown	ST02	< LOD
90	Wall Patch	Brick	B	Intact	Cream	ST02	2.2
91	Wall	Brick	B	Intact	Cream	ST02	< LOD
92	Wall	Brick	B	Peeling	Cream	ST02	< LOD
93	Wall Patch	Brick	B	Peeling	Cream	ST02	2.5
94	Wall	Brick	A	Intact	Cream	ST02	< LOD
95	Wall	Brick	A	Intact	Cream	ST02	< LOD
96	Wall	Brick	D	Intact	Cream	ST02	< LOD
97	Wall	Brick	D	Intact	Cream	ST02	< LOD
98	Wall	Brick	D	Intact	Cream	ST02	< LOD
99	Wall	Brick	D	Intact	Cream	ST02	< LOD
100	Wall	Brick	B	Intact	Cream	ST02	< LOD
101	Wall	Brick	B	Intact	Cream	ST02	< LOD
102	Wall	Brick	C	Intact	Cream	ST02	< LOD
103	Ceiling	Drywall	C	Intact	Cream	ST02	< LOD
104	Brick Wall - Lentel	Metal	C	Intact	Cream	ST02	< LOD
105	Roof Door	Metal	C	Intact	Brown	ST02	< LOD
106	Roof Door Casing	Metal	C	Intact	Brown	ST02	< LOD
107	Ceiling	Wood	C	Peeling	Cream	200	< LOD
108	Ceiling	Wood	C	Peeling	Cream	200	< LOD
109	Beam	Wood	C	Peeling	Cream	200	< LOD
110	Beam	Wood	C	Peeling	Cream	200	< LOD
111	Beam	Wood	C	Peeling	Cream	200	< LOD
112	Beam	Wood	C	Peeling	Cream	200	< LOD
113	Wall	Brick	D	Intact	Cream	V101	< LOD
114	Wall	Drywall	C	Intact	wallpaper	V101	< LOD
115	Wall	Drywall	C	Intact	wallpaper	V101	< LOD
116	Chair Rail	Wood	C	Intact	Varnish	V101	< LOD
117	Baseboard	Wood	C	Intact	Varnish	V101	< LOD
118	Win. Casing	Metal	A	Intact	Brown	V101	< LOD
119	Wall	Brick	B	Intact	Cream	V101	< LOD
120	Wall	Brick	B	Intact	Cream	V101	< LOD
121	Wall	Brick	B	Intact	Cream	V101	< LOD
122	Elevator Door	Metal	B	Intact	Brown	V101	< LOD
123	Elevator Door Casing	Metal	B	Intact	Brown	V101	< LOD
124	Wall	Cinder Block	B	Intact	Cream	ST01	< LOD
125	Wall	Brick	B	Intact	Cream	ST01	< LOD
126	Wall	Brick	B	Intact	Cream	ST01	< LOD
127	Wall	Brick	B	Intact	Cream	ST01	< LOD
128	Newel Post	Metal	B	Intact	Cream	ST01	< LOD
129	Stair Riser	Metal	Center	Intact	Cream	ST01	< LOD
130	Wall	Concrete	A	Intact	Cream	V101	< LOD
131	Wall	Brick	B	Intact	Cream	V101	< LOD
132	Wall	Drywall	C	Intact	Blue	V101	< LOD

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
133	Wall	Drywall	C	Intact	Green	V101	< LOD
134	Door	Metal	D	Intact	Brown	V101	< LOD
135	Door Casing	Metal	D	Intact	Brown	V101	< LOD
136	Wall	Brick	A	Peeling	Cream	100	< LOD
137	Wall	Brick	A	Peeling	Cream	100	< LOD
138	Wall	Plaster	A	Peeling	Cream	100	0.6
139	Shutter Calibrate						NA
140			Calibrate				1.3
141			Calibrate				0.8
142			Calibrate				0.9
143			Calibrate				0.6
144	Wall	Plaster	A	Peeling	Cream	100	< LOD
145	Wall	Brick	A	Peeling	Cream	100	< LOD
146	Wall	Brick	A	Peeling	Cream	100	< LOD
147	Wall	Plaster	A	Peeling	Cream	100	0.6
148	Wall	Plaster	C	Peeling	Cream	100	< LOD
149	Wall	Plaster	C	Peeling	Cream	100	< LOD
150	Wall	Plaster	C	Peeling	Cream	100	0.7
151	Wall	Plaster	C	Peeling	Cream	100	0.7
152	Wall	Plaster	C	Peeling	Cream	100	0.7
153	Wall	Plaster	C	Peeling	Cream	100	1.4
154	Wall	Brick	C	Peeling	Cream	100	1.4
155	Wall	Brick	D	Peeling	Cream	100	< LOD
156	Wall	Plaster	D	Peeling	Cream	100	1
157	Column	Wood	D	Peeling	Cream	100	1.6
158	Column	Wood	Center	Peeling	Cream	100	0.8
159	Shelf	Metal	Center	Intact	Yellow	100	1.6
160	Shelf	Metal	Center	Intact	Yellow	100	2.9
161	Floor Striping	Concrete	Center	Poor	Yellow	100	0.29
162	Floor Striping	Concrete	Center	Poor	Yellow	100	0.8
163	Floor Striping	Concrete	Center	Poor	Yellow	100	0.5
164	Shelf	Metal	D	Intact	Red	100	< LOD
165	Shelf	Metal	D	Intact	Red	100	< LOD
166	Shelf	Metal	D	Intact	Red	100	< LOD
167	Metal Bollard	Metal	D	Intact	Yellow	100	< LOD
168	Shelf	Metal	D	Intact	Yellow	100	2.4
169	Ceiling	Wood	A	Peeling	Cream	100	< LOD
170	Ceiling	Wood	A	Peeling	Cream	100	< LOD
171	Beam	Wood	A	Peeling	Cream	100	< LOD
172	Beam	Wood	A	Peeling	Cream	100	< LOD
173	Pipe	Metal	A	Peeling	Cream	100	< LOD
174	Pipe	Metal	A	Peeling	Cream	100	< LOD
175	Wall	Wood	A	Intact	White	110	< LOD
176	Column	Metal	A	Intact	White	110	< LOD

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
177	Beam	Metal	A	Intact	White	110	< LOD
178	Garage Door	Metal	A	Intact	White	110	< LOD
179	Wall	Brick	C	Intact	Cream	110	0.21
180	Wall	Brick	C	Intact	Cream	110	< LOD
181	Wall	Brick	C	Intact	Cream	110	< LOD
182	Wall	Brick	C	Intact	White	110	0.25
183	Wall	Brick	B	Intact	White	110	0.15
184	Beam	Metal	Center	Intact	Cream	110	< LOD
185	Angle Iron	Metal	Center	Intact	Cream	110	< LOD
186	Z-channel	Metal	Center	Intact	Cream	110	< LOD
187	Win. Casing	Wood	D	Intact	Cream	110	< LOD
188	Wall	Brick	D	Peeling	Cream	111	< LOD
189	Wall	Brick	D	Peeling	Cream	111	< LOD
190	Wall	Brick	D	Peeling	Cream	111	1
191	Wall	Brick	D	Peeling	Cream	111	< LOD
192	Wall	Brick	D	Peeling	Cream	111	0.5
193	Wall	Brick	A	Peeling	Cream	111	0.7
194	Wall	Brick	A	Peeling	Cream	111	< LOD
195	Wall	Brick	D	Peeling	Cream	111	< LOD
196	Wall	Brick	B	Peeling	Cream	111	1.5
197	Column	Wood	Center	Peeling	Cream	111	1.4
198	Floor Striping	Concrete	Center	Poor	White	111	< LOD
199	Floor Striping	Concrete	D	Poor	White	111	0.21
200		Shutter Calibrate					NA
201			Calibrate				0.7
202			Calibrate				1
203			Calibrate				0.6
204			Calibrate				1.1
205		Shutter Calibrate					NA
206			Calibrate				0.6
207			Calibrate				1
208			Calibrate				0.6
209			Calibrate				0.9
210	Floor	Ceramic Tile	Center	Intact	Grey	219	< LOD
211	Baseboard	Ceramic Tile	C	Intact	Grey	219	< LOD
212	Wall	Ceramic Tile	C	Intact	Grey	219	< LOD
213	Wall	Drywall	C	Intact	White	219	< LOD
214	Pipe	Metal	C	Peeling	White	219	< LOD
215	Wall	Brick	A	Peeling	Cream	100	0.8
216	Wall	Plaster	A	Peeling	Cream	100	0.8
217	Wall	Plaster	A	Peeling	Cream	100	0.8
218	Wall	Plaster	D	Peeling	Cream	100	< LOD
219	Wall	Plaster	D	Peeling	Cream	100	1.4
220	Wall	Brick	D	Peeling	Cream	100	1.1

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
221	Wall	Plaster	D	Peeling	Cream	100	1.5
222	Ceiling-2nd layer	Wood	C	Peeling	Cream	100	< LOD
223	Ceiling-2nd layer	Wood	C	Peeling	Cream	100	0.06
224	Fire Sprinkler Pipe	Metal	B	Intact	Cream	100	<LOD
225	Ceiling Pipe	Metal	B	Intact	Cream	100	<LOD
226	Wall	Brick	C	Peeling	Cream	H102	< LOD
227	Wall	Brick	C	Peeling	Cream	H102	< LOD
228	Wall	Brick	C	Intact	White	H102	1.9
229	Window fill-in	Plaster	C	Intact	Cream	H102	< LOD
230	Wall	Drywall	A	Intact	Cream	H102	< LOD
231	Door	Metal	Center	Intact	Brown	H102	< LOD
232	Door Casing	Metal	Center	Intact	Brown	H102	0.05
233	Garage Door	Metal	C	Intact	Grey	100	< LOD
234	Shelf	Metal	B	Intact	Blue	100	< LOD
235	Shelf	Metal	B	Intact	Blue	100	< LOD
236	Wall	Drywall	A	Intact	White	102C	< LOD
237	Sink	Porcelain	C	Intact	White	102C	< LOD
238	Toilet	Porcelain	C	Intact	White	102C	< LOD
239	Floor	Ceramic Tile	C	Intact	Yellow	102C	< LOD
240	Baseboard	Ceramic Tile	C	Intact	Tan	102C	0.8
241	Baseboard	Ceramic Tile	D	Intact	Tan	102C	0.9
242	Baseboard	Ceramic Tile	A	Intact	Tan	104	1.1
243	Floor	Ceramic Tile	A	Intact	Yellow	104	< LOD
244	Wall	Drywall	A	Peeling	Cream	104	< LOD
245	Door Casing	Wood	B	Fair	Cream	104	< LOD
246	Baseboard	Ceramic Tile	B	Intact	Tan	105	0.8
247	Urinal	Porcelain	D	Intact	White	105	< LOD
248	Wall	Drywall	B	Intact	Cream	105	< LOD
249	Wall	Drywall	B	Intact	Cream	108	< LOD
250	Ceiling track	Metal	B	Intact	Cream	108	< LOD
251	Door Casing	Wood	D	Intact	Cream	108	< LOD
252	Door	Wood	D	Intact	Varnish	108	< LOD
253	Wall	Brick	A	Peeling	Yellow	Exterior	< LOD
254	Wall	Brick	A	Peeling	Yellow	Exterior	< LOD
255	Wall	Plaster	A	Poor	Yellow	Exterior	< LOD
256	Wall	Brick	A	Peeling	Yellow	Exterior	< LOD
257	Wall	Brick	A	Peeling	Yellow	Exterior	< LOD
258	Ext. Downspout	Metal	A	Intact	White	Exterior	< LOD
259	Wall	Concrete	A	Intact	Yellow	Exterior	< LOD
260	Wall	Brick	D	Peeling	Yellow	Exterior	0.18
261	Wall	Brick	D	Peeling	Yellow	Exterior	0.2
262	Wall	Metal	D	Peeling	Yellow	Exterior	< LOD
263	Staircase	Metal	D	Poor	Grey	Exterior	< LOD
264	Staircase	Metal	D	Poor	Grey	Exterior	1.2

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
265	Staircase Column	Metal	D	Peeling	Grey	Exterior	0.7
266	Staircase Column	Metal	D	Peeling	Grey	Exterior	< LOD
267	Staircase Beam	Metal	D	Peeling	Grey	Exterior	< LOD
268	Staircase Beam	Metal	D	Peeling	Grey	Exterior	< LOD
269	Staircase Column	Metal	D	Peeling	Grey	Exterior	0.6
270	Staircase handrail	Metal	D	Poor	Grey	Exterior	< LOD
271	Column	Metal	C	Intact	Tan	114	< LOD
272	Column	Metal	D	Intact	Tan	114	< LOD
273	Wall	Brick	A	Peeling	Cream	114	< LOD
274	Wall	Wood	A	Intact	Cream	114	< LOD
275	Wall	Cinder Block	C	Intact	Yellow	Exterior	< LOD
276	Column	Concrete	C	Intact	Yellow	Exterior	< LOD
277	Staircase	Metal	C	Poor	Grey	Exterior	< LOD
278	Staircase	Metal	C	Poor	Grey	Exterior	< LOD
279	Wall	Brick	A	Poor	White	114A	< LOD
280	Wall	Brick	A	Poor	White	114A	< LOD
281	Wall	Brick	A	Poor	White	114A	< LOD
282	Column	Metal	C	Intact	White	114A	< LOD
283	Column	Metal	B	Intact	White	114A	0.06
284	Column	Metal	A	Intact	Yellow	X101	< LOD
285	Column	Metal	C	Intact	Brown	X101	< LOD
286	Wall	Brick	A	Peeling	Yellow	X101	< LOD
287	Wall	Brick	A	Peeling	Yellow	X101	< LOD
288	Wall	Brick	A	Peeling	Yellow	X101	< LOD
289	Garage Door	Metal	A	Intact	Grey	X101	< LOD
290	Brick Corner Protector	Metal	A	Intact	Yellow	X101	< LOD
291	Door	Metal	B	Intact	Brown	X101	< LOD
292	Column	Metal	A	Peeling	Yellow	X101	< LOD
293	Ramp	Concrete	C	Peeling	Yellow	X101	< LOD
294	Ramp	Concrete	C	Peeling	Yellow	X101	< LOD
295	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	2.8
296	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	< LOD
297	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	0.6
298	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	3.3
299	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	0.8
300	Loading Dock Corner Protector	Metal	C	Peeling	Yellow	X101	1.1
301	Loading Ramp Height Adjuster	Metal	C	Peeling	Yellow-grey	X101	< LOD

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# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
302	Loading Ramp Height Adjuster	Metal	C	Peeling	Yellow-grey	X101	0.4
303	Wall	Brick	C	Peeling	Yellow	Exterior	< LOD
304	Wall	Brick	C	Intact	Yellow	Exterior	< LOD
305	Wall	Brick	B	Intact	Yellow	Exterior	< LOD
306	Wall	Brick	B	Peeling	Yellow	Exterior	< LOD
307	Wall	Brick	B	Intact	Yellow	Exterior	< LOD
308	Staircase Column	Metal	B	Intact	Brown	Exterior	< LOD
309	Stair Stringer	Metal	B	Intact	Brown	Exterior	< LOD
310	Stair Handrail	Metal	B	Poor	Brown	Exterior	< LOD
311	Stair Step	Metal	B	Poor	Brown	Exterior	< LOD
312	Stair Canopy	Metal	B	Intact	Brown	Exterior	< LOD
313	Stair Canopy	Metal	B	Intact	Brown	Exterior	< LOD
314	Door	Metal	B	Intact	Brown	Exterior	< LOD
315	Hoist-Crane	Metal		Poor	Yellow	Exterior	0.4
316	Hoist-Crane	Metal		Poor	Yellow	Exterior	1.5
317	Hoist-Crane	Metal		Poor	Yellow	Exterior	1.1
318	Hoist-Crane	Metal		Poor	Yellow	Exterior	1.1
319	Hoist-Crane	Metal		Poor	Yellow	Exterior	1.9
320	Hoist-Crane	Metal		Poor	Yellow	Exterior	0.5
321	Hoist-Crane	Metal		Poor	Yellow	Exterior	< LOD
322	Hoist-Crane	Metal		Poor	Yellow	Exterior	0.7
323	Bollard	Metal	D	Intact	Yellow	Exterior	< LOD
324	Bollard	Metal	D	Intact	Yellow	Exterior	< LOD
325	Parking strip	Asphalt	D	Poor	Yellow	Exterior	< LOD
326	Parking strip	Asphalt	D	Poor	Yellow	Exterior	< LOD
327	Shutter Calibrate						NA
328			Calibrate				0.6
329			Calibrate				1.1
330			Calibrate				0.7
331			Calibrate				1.1
332	Window Casing	Wood	C	Peeling	Grey	Exterior	< LOD
333	Window Sill	Wood	C	Peeling	Grey	Exterior	< LOD
334	Window Security Bars	Metal	C	Fair	Yellow	Exterior	1.2
335	Window Security Bars	Metal	C	Fair	Yellow	Exterior	< LOD
336	Window Security Bars	Metal	C	Fair	Yellow	Exterior	1.5
337	Window Security Bars	Metal	C	Fair	Yellow	Exterior	0.7
338	Window Security Bars	Metal	C	Fair	Yellow	Exterior	1.2
339	Window Security Bars	Metal	C	Fair	Yellow	Exterior	1.3
340	Garage Door Bar	Metal	A	Poor	Yellow	X101	< LOD
341	Garage Door Bar	Metal	A	Poor	Yellow	X101	< LOD
342	Wall	Brick	B	Intact	Yellow	2nd floor Hallway by ST02	9.5

Blue text indicates any concentrations of LBP which OSHA considers a potential exposure risk when removed.

Red text indicates concentrations of LBP that have specific disposal requirements regulated by SCDHEC.



# Appendix C – Summary of XRF Data

Date: 03/13-15/18

Scan No.	Component	Substrate	Side	Condition	Color	Sample Location	PbC mg/cm <sup>2</sup>
343	Wall	Brick	B	Intact	Yellow	2nd floor Hallway by ST02	8.2
344	Wall	Brick	B	Peeling	Yellow	2nd floor Hallway by ST02	9.8
345	Skylight	Fiberglass	Center	Intact	Green	Roof	< LOD
346	Knee Wall cap	Metal	Center	Intact	White	Roof	< LOD
347	Wall	Brick	B	Intact	White	Roof-ST02	< LOD
348	Ext. Facia	Wood	B	Peeling	Yellow	Roof-ST02	< LOD
349	Roof	TPO	Center	Intact	White	Roof-ST02	< LOD
350	Roof	TPO	Center	Intact	White	Roof-ST02	< LOD
351	Door	Metal	D	Poor	Brown	Roof-ST02	< LOD
352	Roof	Metal	B	Intact	Yellow	X101	< LOD
353	Ext. Gutter	Metal	C	Intact	Brown	X101	< LOD
354	Beam	Metal	B	Intact	Red	X101	< LOD
355	Beam	Metal	B	Intact	Red	X101	< LOD
356	S-channel	Metal	B	Intact	Red	X101	< LOD
357	Shutter Calibrate						NA
358			Calibrate				0.6
359			Calibrate				1
360			Calibrate				0.6
361			Calibrate				1

Blue text indicates any concentrations of LBP which OSHA considers a potential exposure risk when removed.

Red text indicates concentrations of LBP that have specific disposal requirements regulated by SCDHEC.

## Appendix D

### Site Photographs of Lead Positive Items

## Photographs 1 & 2



Photo taken from above drop ceiling in room 200 showing wood columns and column top plate that contain lead-based paint. Close-up view of column and column top plate.

## Photographs 3 & 4



Photo in main warehouse area (Room 100) of the wood columns and metal yellow shelving that contain lead based paint.



## Photographs 5 & 6



Photo in main warehouse area (Room 100) of the lead containing yellow paint striping on concrete floor.

## Photographs 7 & 8



Photo in main warehouse area (Room 100) of the lead-based painted plaster walls with photo of paint chips on the floor.



# Photographs 9 & 10



Photo in main warehouse area (Room 100) of the lead-based painted brick walls with photo of paint chips on the floor.





## Photographs 11 & 12



Photo of yellow painted brick walls painted with lead-based paint above drop ceiling on second floor in hallway by stairway ST02.



Photo of cream-painted brick wall patched section in ST02 containing lead-based paint.

# Photograph 13



Photo of white painted brick walls painted with lead-based paint located in room 111.

# Photographs 14 & 15



Photo of lead-containing tan ceramic baseboard tile, located in janitor closet and bathrooms.





## Photographs 16 & 17



Photo of lead containing tan ceramic baseboard tile, located in bathrooms.



Photo of lead-containing tan ceramic wall tile located in shower. (Room 238A)

# Photographs 18 & 19



Photo of lead-containing yellow painted metal loading dock edge protector on back loading dock .



Photo of lead-containing yellow painted metal window security bars on room 102B.

# Photographs 20 & 21



Photo of lead-containing gray painted exterior staircase located on west side of the building .



Photo of lead-containing yellow painted hoist located on west side of the building.

## Appendix E

### Personnel Certification



# United States Environmental Protection Agency

This is to certify that

Jeffrey Steve Leary



has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

**In the Jurisdiction of:**

South Carolina

This certification is valid from the date of issuance and expires July 29, 2018

SC-I-18721-3

Certification #

April 24, 2015

Issued On



A handwritten signature in dark ink, appearing to read "Adrienne Priselac".

Adrienne Priselac, Manager, Toxics Office

Land Division

## SECTION 01 10 00 - SUMMARY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to all Sections in the Project Manual.
  - 1. The Contractor shall issue a copy of all Division 01 Sections, including copy of Table of Contents, when issuing a partial set of specifications to other contractors. Issuing partial sets of construction documents is discouraged by the Architect and the Owner. Issuing partial sets will be at the Contractor's risk.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Project information.
  - 2. Work covered by Contract Documents.
  - 3. Access to site.
  - 4. Coordination with occupants.
  - 5. Work restrictions.
  - 6. Specification and drawing conventions.

#### 1.3 PROJECT INFORMATION

- A. Project Identification: 1206 Flora Street Mill Renovation - Electrical Site Package - Facilities Relocation - Building Systems Renovation Project
  - 1. Project Location: 1206 Flora Street Columbia, SC 29208
- B. Owner: University of South Carolina.
- C. Architect: GMC, Inc., 1219 Wayne Street, South Carolina 29201.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of the following.
  - 1. The project work consists of the Installation of a new Electrical Service to the 1206 Flora Mill along with associated electrical panels and wiring at the existing building.
- B. Construction Description:
  - 1. The Work includes selective demolition, installation of the new Electrical Service and associated panels and wiring as indicated on the attached drawings.

C. Type of Contract:

1. Project will be constructed under a single prime contract. The contractor shall coordinate with other contractors performing other work not described in this project.

1.5 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Limits: Confine construction operations to areas shown on the drawings.
  2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.6 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  2. Notify Owner not less than 7 days in advance of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7:00 a.m. to 6:00 p.m., Monday through Friday.

#### 1.8 SPECIFICATION AND DRAWING CONVENTIONS

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

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

#### 1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include revised Documents.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.
    - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    - e. Quotation Form: Use forms acceptable to Architect.

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

#### 1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on SE-480 (latest edition).

#### 1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
  - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

#### 1.3 DEFINITIONS

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

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the schedule of values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange schedule of values consistent with format of AIA Document G703.



3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule (preliminary if not final).
  4. List of Contractor's staff assignments.
  5. List of Contractor's principal consultants.
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 DEFINITIONS

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

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.

- B. Key Personnel Names: Within 5 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

#### 1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Coordinate with other Contractors hired by the owner to perform other work outside the scope of this project.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

#### 1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
  - 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
  - 1. Project name.

2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

## 1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 5 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Critical work sequencing and long-lead items.
    - c. Designation of key personnel and their duties.



- d. Lines of communications.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for RFIs.
  - g. Procedures for testing and inspecting.
  - h. Procedures for processing Applications for Payment.
  - i. Distribution of the Contract Documents.
  - j. Submittal procedures.
  - k. Preparation of record documents.
  - l. Use of the premises and existing building.
  - m. Work restrictions.
  - n. Working hours.
  - o. Owner's occupancy requirements.
  - p. Responsibility for temporary facilities and controls.
  - q. Procedures for moisture and mold control.
  - r. Procedures for disruptions and shutdowns.
  - s. Construction waste management and recycling.
  - t. Parking availability.
  - u. Office, work, and storage areas.
  - v. Equipment deliveries and priorities.
  - w. First aid.
  - x. Security.
  - y. Progress cleaning.
4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
  - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility requirements.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's written instructions.
    - n. Warranty requirements.
    - o. Compatibility of materials.

- p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
  - 2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Progress cleaning.
      - 10) Quality and work standards.

- 11) Status of correction of deficient items.
  - 12) Field observations.
  - 13) Status of RFIs.
  - 14) Status of proposal requests.
  - 15) Pending changes.
  - 16) Status of Change Orders.
  - 17) Pending claims and disputes.
  - 18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
    - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    - c. Review present and future needs of each contractor present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.

13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

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

#### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- C. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
  1. Working electronic copy of schedule file, where indicated.
  2. PDF electronic file.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- C. Construction Schedule Updating Reports: Submit with Applications for Payment.
- D. Site Condition Reports: Submit at time of discovery of differing conditions.
- E. Special Reports: Submit at time of unusual event.
- F. Qualification Data: For scheduling consultant.

#### 1.5 COORDINATION

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

### PART 2 - PRODUCTS

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

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
  1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
  4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
  6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  3. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Environmental control.
  4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
    - a. Submittals.
    - b. Fabrication.
    - c. Installation.
    - d. Curing.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
  2. Unanswered Requests for Information.
  3. Rejected or unreturned submittals.
  4. Notations on returned submittals.
  5. Pending modifications affecting the Work and Contract Time.



- F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Submit a comprehensive, fully developed, horizontal, Contractor's construction schedule within 10 days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

## 2.3 REPORTS

- A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.4 SPECIAL REPORTS

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

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

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

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

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

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

#### 1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing,

fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 30 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
  - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
  - a. Scheduled date for first submittal.
  - b. Specification Section number and title.
  - c. Submittal category: Action; informational.
  - d. Name of subcontractor.
  - e. Description of the Work covered.
  - f. Scheduled date for Architect's final release or approval.
  - g. Scheduled date of fabrication.
  - h. Scheduled dates for installation.

## 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
  1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD.
    - c. Contractor shall execute a data licensing agreement in the form of Agreement included at the end of this specification section.
    - d. The following digital data files will be furnished for each appropriate discipline:
      - 1) Floor plans.
      - 2) Reflected ceiling plans.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., USCT-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., USCT-061000.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Architect, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Contractor.
    - e. Name of firm or entity that prepared submittal.
    - f. Names of subcontractor, manufacturer, and supplier.

- g. Submittal purpose and description.
  - h. Specification Section number and title.
  - i. Drawing number and detail references, as appropriate.
  - j. Location(s) where product is to be installed, as appropriate.
  - k. Related physical samples submitted directly.
  - l. Indication of full or partial submittal.
  - m. Transmittal number, numbered consecutively.
  - n. Submittal and transmittal distribution record.
  - o. Other necessary identification.
  - p. Remarks.
- E. Options: Identify options requiring selection by Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.
- J. Paper Submittals: Paper submittals shall be used for samples and material/color selection charts only. Place a permanent label or title block on each submittal item for identification.
- 1. Indicate name of firm or entity that prepared each submittal on label or title block.
  - 2. Provide a space approximately **6 by 8 inches (150 by 200 mm)** on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  - 3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.

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



## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  2. Action Submittals: For paper submittals, submit seven paper copies of each submittal unless otherwise indicated. Architect will return two copies.
  3. Informational Submittals: Submit one digital copy of each submittal unless otherwise indicated. Architect will not return copies.
  4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Submit product schedule in the following format:

- a. PDF electronic file.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

## 2.2 DELEGATED-DESIGN SERVICES

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

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### 3.2 ARCHITECT'S ACTION

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

END OF SECTION 013300

## SECTION 014000 - QUALITY REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.
- C. Special Inspections: No Special Inspections are required for this project.

#### 1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

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

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.

- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

#### 1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 12. Name and signature of laboratory inspector.

13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.



- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

## 1.8 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  - 2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
  - 3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
  - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

- a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

## 1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections attached to this Section, and as follows:

1. No special Inspections are required for this project.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 01 41 50 – SPECIAL INSPECTIONS AND TESTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
  - 1. The Owner will hire inspectors, testing companies and special inspections.
  - 2. It is intended to inform the Contractor of the Owner's Quality Assurance Program and the extent of the Contractor's responsibilities.
  - 3. This specification section is also intended to notify the Special Inspector, Testing Laboratory, and other Agents of the Special Inspector of their requirements and responsibilities.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. It shall be the Owner's responsibility to contract for special inspections and testing, however, the Contractor shall be responsible for proper notification when inspection is required in the progress of the work, providing access to facilitate the inspection and making corrections necessary when work is not in compliance with the Contract Documents.
- C. Scope:
  - 1. This section includes a listing of special inspections to be performed during the progress of this project. A Certificate of Occupancy cannot be issued without documentation of that these inspections have been performed and the work is in conformance with the Contract Documents.

D. Related Sections include the following:

1. Division 1 Section "Quality Requirements" shall apply to this section.
2. Division 1 Section "Project Management and Coordination" for conducting Pre-construction conference.
3. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
4. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
5. Divisions 2 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- F. Aiken County Building Official: Governing entity that will issue Certificate of Occupancy.

1.4 GENERAL REQUIREMENTS

- A. Special Inspections and Structural Testing shall be in accordance with Chapter 17 of the 2015 International Building Code.
- B. Inspections shall be in accordance with Chapter 1 of the 2015 International Building Code.
- C. Required Inspections and Tests are described in the "Statement of Special Inspections" attached at the end of this section, and in the individual specification Sections for the items to be inspected or tested.
- D. Prior to the commencement of any work, a pre-construction conference shall be held to review the special inspection requirements for the project. Attendees shall include: the Owner's

representative, all Contractors / sub-contractors, Architect, Engineers, Special Inspectors and Special Inspection Agency.

#### 1.5 QUALIFICATIONS:

- A. The Testing Laboratory and individual technicians shall be approved by the Building Official.
- B. The Testing Laboratory shall maintain a full time licensed Professional Engineer (P.E.) on staff who shall certify the test reports. The Engineer shall be responsible for the training of the testing technicians and shall be in responsible charge of the field and laboratory testing operations.
- C. Special Inspections shall be performed by Qualified Inspectors:
  - 1. It is the Special Inspector's responsibility to thoroughly review the approved plans in advance of construction to establish that adequate information is available to conduct the required inspections and tests. All errors and/or omissions in the reviewed plans that create any form of uncertainty or ambiguity shall be resolved through the Architect / Engineer of Record. It is the duty of the Architect / Engineer of Record to coordinate any code interpretation by the building official.

#### 1.6 CONFLICTING REQUIREMENTS

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

#### 1.7 SUBMITTALS (*CONTRACTOR RESPONSIBILITY*)

- A. Certification from facilities / plants: When work is performed on the premises of facility or plant that is approved by a nationally certified organization (e.g. Steel Joist Institute or American Institute of Steel Construction), shop inspections are not required. The Contractor shall submit to the Architect and the City of Columbia approved Inspector:
  - 1. A copy of fabricator's current certification.
  - 2. A letter stating the name, address, control number of the project and the fabricator's file number. Letter shall state that they are a fabricator for the project, and that upon completion, a Certificate of Compliance will be submitted stating that the fabrication work was performed in accordance with the approved plans, shop drawings, and specifications.



3. NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED BY THE OFFICE OF SCHOOL FACILITIES Building Official until this information has been submitted.

1.8 SUBMITTALS (***OWNER HIRED INSPECTORS AND TESTING COMPANIES***)

- A. The Special Inspector and Testing Laboratory shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  1. Specification Section number and title.
  2. Description of test and inspection.
  3. Identification of applicable standards.
  4. Identification of test and inspection methods.
  5. Number of tests and inspections required.
  6. Time schedule or time span for tests and inspections.
  7. Entity responsible for performing tests and inspections.
  8. Requirements for obtaining samples.
  9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
  1. Detailed daily and weekly reports shall be prepared of each inspection and test by the Special Inspector and Testing Laboratory. ***Inspections and Testing shall occur as needed throughout the project and reports shall be submitted within a 2-3 days of completion of the testing.***
  2. Reports shall include:
    - a. Date of issue.
    - b. Project title and number.
    - c. Name, address, and telephone number of testing agency.
    - d. Dates and locations of samples and tests or inspections.
    - e. Names of individuals making tests and inspections.
    - f. Description of the Work and test and inspection method.
    - g. Identification of product and Specification Section.
    - h. Complete test or inspection data.
    - i. Test and inspection results and an interpretation of test results.
    - j. Applicable ASTM Standard.
    - k. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
    - l. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
    - m. Name and signature of laboratory inspector.
    - n. Engineer's seal and signature on FINAL REPORT only.
    - o. Recommendations on retesting and reinspecting.
  3. The Special Inspector shall submit DAILY inspection and test reports to the Architect and Contractor upon their completion.

4. The Special Inspector shall submit all other inspection and test reports to the Architect upon their completion. The Architect will distribute copies of the Weekly Reports and other testing information to the Engineers, Contractors, Owners, and Office of State Engineer as needed.
5. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor and the Architect. If the discrepancies are not corrected, the Special Inspector shall notify the Architect. Reports shall document all discrepancies identified and the corrective action taken.
6. The Testing Laboratory shall immediately notify the Architect by telephone, fax, or email of any test results which fail to comply with the requirements in the Contract Documents.
7. At the completion of the work requiring Special Inspections, each inspection agency and testing laboratory shall provide a statement to the Architect and Building Official that all work was completed in substantial conformance with the Contract Documents and that all appropriate inspections and tests were performed.

D. Final Report of Special Inspections

1. The “Final Report of Special Inspections” shall be completed by the Special Inspector and submitted to the Architect and Building Official prior to issuance of a Certificate of Use and Occupancy.
2. The “Final Report of the Special Inspections” will certify that all required inspections have been performed and will itemize any discrepancies that were not corrected or resolved.

1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: The Owner will engage and pay for the services of a qualified testing agency or special inspector to conduct special tests and inspections required, and as follows:
  1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing / inspections they are to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

- B. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

#### 1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage and pay for the services of a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction, and as follows:
  1. Verifying that all work requiring special inspections is inspected and/or tested prior to concealment.
  2. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
  3. When work is performed on the premises of facility or plant that is approved by a nationally certified organization (e.g. Steel Joist Institute or American Institute of Steel Construction), shop inspections are not required. The Contractor shall submit to the Architect and the City of Columbia approved Inspector information required under Contractor Submittals.
  4. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  5. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, with copy to Contractor and to authorities having jurisdiction.
  6. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  7. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  8. The Contractor shall be responsible for the cost of any Retesting and reinspecting corrected work which fails to comply with the requirements of the Contract Documents.

#### 1.12 CONTRACTOR RESPONSIBILITIES

- 1. Contractor's Statement of Responsibility: Each Contractor responsible for the construction of a seismic-force-resisting system, designated seismic system.
- B. The Contractor shall cooperate with the Special Inspector and his agents so that the Special Inspections and testing may be performed without hindrance.
- C. The Contractor shall review the "Statement of Special Inspections" and shall be responsible for coordinating and scheduling inspections and tests. The Contractor shall notify the Special Inspector or Testing Laboratory and Architect at least 48 hours in advance of a required inspection or test. Un-inspected work that required inspection may be rejected solely on that basis. Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- D. The Contractor shall keep at the project site the latest set of construction drawings, field sketches, approved and field use shop and erection drawings, and specifications for use by the inspectors and testing technicians.
- E. The Contractor shall provide incidental labor and facilities to provide access to the work to be inspected or tested, to obtain and handle samples at the site or at the source of products to be tested, and to facilitate tests and inspection, storage and curing of test samples. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. The Special Inspection program shall in no way relieve the Contractor of his obligation to perform the work in accordance with the requirements of the Contract Documents or from implementing an effective Quality Control program. All work that is to be subjected to Special Inspections shall first be reviewed by the Contractor's quality control personnel.
- G. The Contractor shall be solely responsibly for construction site safety.

#### 1.13 LIMITS ON AUTHORITY

- A. The Special Inspector or Testing Laboratory may not release, revoke, alter, or enlarge the requirements on the Contract Documents.
- B. The Special Inspector or Testing Laboratory will not have control over the Contractor's means and methods of construction.
- C. The Special Inspector or Testing Laboratory shall not be responsible for construction site safety.
- D. The Special Inspector or Testing Laboratory has no authority to stop work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. The Contractor shall maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

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

SCHEDULE OF SPECIAL INSPECTIONS

**Project Name:** Electrical Site Package – Facilities Relocation – Building Systems Renovation Project

**Architect’s Project No:** ACOL180003

**Owner:** University of South Carolina

Seismic Design Category: “C”

*Inspection requirements based on Section 110 of Chapter 1 of the 2018 International Building Code.*

MATERIALS	TYPE OF INSPECTION	SPECIFICATION OR CODE REFERENCE	INSPECTION BY		
			ARCH	ENG	Third Party Testing Company
Special Inspections and Testing	See table below				
Mechanical Inspections	Underground inspection after trenches or ditches are excavated and piping installed, prior to backfill in place.	International Mechanical Code 2015 - M107.1  <b>Not Applicable</b>			<b>Not Applicable</b>
	Rough-in inspection prior to wall or ceiling membranes	International Mechanical Code 2015 - M107.1			To Be Determined
Plumbing Inspections	Underground inspection after trenches or ditches are excavated and piping installed, prior to backfill in place.	International Plumbing Code 2015 - P107.1			To Be Determined
	Rough-in inspection prior to wall or ceiling membranes	International Plumbing Code 2015 - P107.1			To Be Determined
Electrical Inspections	Underground inspection after trenches or ditches are excavated and conduit installed, prior to backfill in place.	National Electric Code 2014 - E702			To Be Determined
	Rough-in inspection prior to wall or ceiling membranes	National Electric Code 2014 - E702			To Be Determined
National Fire Alarm Inspections	Installing Contractor’s written Statement of installation and testing	NFPA Section 4.5			To Be Determined

	Record of Completion Form	NFPA Section 4.5			To Be Determined
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*Special Inspection requirements based on Section 1705 of Chapter 17 of the 2018 International Building Code.*

MATERIALS	TYPE OF INSPECTION	SPECIFICATION OR CODE REFERENCE	INSPECTION BY		
			ARCH	ENG	Third Party Testing Company
Fire Protection Components	Seismic attachments to structure and anchorage of seismic braces and anchorage for fire protection piping and equipment.	IBC 1705.12.6			To Be Determined

**SEISMIC RESISTANCE**

IBC states, in Chapter 17, specific contractor responsibilities, as follows:

- A. Each contractor responsible for the construction of a main seismic-force resisting system, designated seismic system or a seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor’s statement of responsibility shall contain acknowledgment of awareness of the special requirements contained in the statement of special inspections.
- B. It is the inspectors’ responsibility to verify that the contractor conforms to this section of the code. Furthermore, it is vital to understand that mechanical, electrical and plumbing seismic and vibration analysis and inspections are required and must include the seismic protection for electrical raceways, and equipment; plumbing, piping and relate equipment; and, seismic protection for mechanical systems.

END OF SECTION 014150



## SECTION 014200 - REFERENCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 DEFINITIONS

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

#### 1.3 INDUSTRY STANDARDS

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

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

#### 1.4 ABBREVIATIONS AND ACRONYMS

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

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

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

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

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

200. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); [www.wicnet.org](http://www.wicnet.org).
201. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
202. WSRCA - Western States Roofing Contractors Association; [www.wsrca.com](http://www.wsrca.com).
203. WPA - Western Wood Products Association; [www.wwpa.org](http://www.wwpa.org).

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

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

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

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

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200



## SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

#### 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

#### 1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

## 1.5 PROJECT CONDITIONS

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

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Temporary Partitions: Provide temporary partitions of wood stud construction or fencing with windscreen separating the existing stadium areas from the construction area.

### 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Field Office Trailer is **NOT** required. Utilize an existing room at the Existing Building as the construction field office, if authorized by the Owner.
  - 1. Protect and preserve all existing equipment that is to remain in like-new or current condition. Repair or replace any damage to the existing space. Vacate space at least 2 weeks prior to substantial completion or as directed by the owner.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.
  - 2. Locate material storage in locations acceptable to the owner.

### 2.3 EQUIPMENT

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

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

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

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Use of the Existing utilities on site is permitted by the Owner. Notify the Owner of connection locations and types of services being used. Notify the owner of any changes to the existing utilities/
- B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
- E. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- B. Project Signs: Unauthorized signs are not permitted.
  - 1. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
    - a. Provide temporary, directional signs for construction personnel and visitors.
  - 2. Maintain and touchup signs so they are legible at all times.
- C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- D. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

2. Protect existing flooring in the facility. Repair and replace and damage caused by Lifts and Hoists.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
  1. Provide temporary partitions that separate the work area from other portions of the building, including dust protection.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- D. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
  1. Prohibit smoking in construction areas.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
  - 1. Section 012500 "Substitution Procedures" for requests for substitutions.
  - 2. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

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

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
  - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

#### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

C. Storage:

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

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
  3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
  5. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  3. Products:
    - a. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
    4. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with



requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

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

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

## SECTION 017300 - EXECUTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  1. Construction layout.
  2. Field engineering and surveying.
  3. Installation of the Work.
  4. Cutting and patching.
  5. Progress cleaning.
  6. Starting and adjusting.
  7. Protection of installed construction.
  8. Correction of Work.

#### 1.3 DEFINITIONS

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

#### 1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in

increased maintenance or decreased operational life or safety. Operational elements include the following:

- a. Primary operational systems and equipment.
  - b. Mechanical systems piping and ducts.
  - c. Fire-detection and -alarm systems.
  - d. Electrical wiring systems.
  - e. Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- a. Water, moisture, or vapor barriers.
  - b. Membranes and flashings.
  - c. Equipment supports.
  - d. Piping, ductwork, vessels, and equipment.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and

verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

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

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

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

### 3.2 PREPARATION

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

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

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

### 3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance and ceiling heights specified. Notify the Architect if ceiling heights cannot be reasonably achieved through coordination between trades and if any obstruction less than 96" is encountered.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 5. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
  1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

### 3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  1. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.



- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

### 3.10 PROTECTION OF INSTALLED CONSTRUCTION

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

END OF SECTION 017300

## SECTION 01 73 10 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. See Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

#### 1.2 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

#### 1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

#### 1.4 WARRANTY

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

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

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

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

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

#### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

### 3.3 PERFORMANCE

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

END OF SECTION

## SECTION 01 73 20 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of existing building or structure.
  - 2. Demolition and removal of selected site elements.
  - 3. Salvage of existing items to be reused or recycled.
- B. See Division 23 Sections for demolishing, cutting, patching, or relocating mechanical items.
- C. See Division 26 Sections for demolishing, cutting, patching, or relocating electrical items.

#### 1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.3 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

#### 1.4 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of stairs, and locations of temporary partitions and means of egress.
- B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

### 1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at Project site.

### 1.6 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 7 days notice to Owner of activities that will affect Owner's operations. Owner permission is also necessary prior to performing any utility disruptions.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
  - 1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
  - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- D. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- E. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- F. Storage or sale of removed items or materials on-site is not permitted.
- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

### 1.7 WARRANTY

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

## PART 2 - PRODUCTS

### 2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
  - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  - 2. Use materials whose installed performance equals or surpasses that of existing materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
  - 1. Provide at least 7 days prior notice to Owner if shutdown of service is required for any utility interruption.
- C. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- D. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

### 3.3 PREPARATION

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

### 3.4 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations.
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
  2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.



5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  6. Dispose of demolished items and materials promptly.
- B. Existing Facilities: Comply with building manager's requirements for using and protecting stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area on-site.
  5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 3.5 DISPOSAL OF DEMOLISHED MATERIALS
- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION

## SECTION 017700 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 2. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

#### 1.3 ACTION SUBMITTALS

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

#### 1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

#### 1.5 SUBSTANTIAL COMPLETION PROCEDURES

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

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  2. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
    - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

#### 1.6 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
  2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection.

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

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
  4. Submit list of incomplete items in the following format:
    - a. MS Excel electronic file. Architect will return annotated file.
    - b. PDF electronic file. Architect will return annotated file.

## 1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities of rubbish, waste material, litter, and other foreign substances.
    - b. Remove tools, construction equipment, machinery, and surplus material from Project site.

- c. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  - d. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - e. Sweep concrete floors broom clean in unoccupied spaces.
  - f. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - g. Remove labels that are not permanent.
  - h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - k. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - l. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 01 78 20 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Emergency manuals.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, and systems and equipment.
- B. See Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

- A. Submission of Operating and Maintenance Manuals: When the HVAC systems are approximately 75 percent complete, submit four sets of manuals for Architect's review.
  - 1. Architect will submit one copy with review comments to the Owner for approval.
- B. Initial Submittal: Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- C. Final Submittal:
  - 1. Correct or modify each manual to comply with Architect's comments. Provide one electronic copy of the final manual on CDROM or Flash Drive in Adobe PDF format. Provide PDF bookmarks for each section and subsection of the manual. Submit corrected manual within 15 days of receipt of Architect's comments.

1.3 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.
- B. Purge manuals prior to submitting to Architect to include only technical data related to in-place construction.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### 2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.3 EMERGENCY MANUALS

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



## 2.4 OPERATION MANUALS

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

## 2.5 PRODUCT MAINTENANCE MANUAL

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

- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## 2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

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

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

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

END OF SECTION

## SECTION 017839 - PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Product Data.
  - 3. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Section 017700 "Closeout Procedures" for general closeout procedures.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of record Drawings as follows:
    - a. Initial Submittal:
      - 1) Submit PDF electronic files of scanned record prints.
      - 2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
    - b. Final Submittal:
      - 1) Submit PDF electronic files of scanned record prints and 1 set(s) of prints.
      - 2) Print each drawing, whether or not changes and additional information were recorded.
- B. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
  - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Revisions to routing of piping and conduits.
    - d. Actual equipment locations.
    - e. Locations of concealed internal utilities.
    - f. Changes made by Change Order or Construction Change Directive.
    - g. Changes made following Architect's written orders.
    - h. Field records for variable and concealed conditions.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file with comment function enabled.
  3. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
- B. Format: Submit record Product Data as annotated PDF electronic file.
  - 1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

## 2.3 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
  - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

## PART 3 - EXECUTION

### 3.1 RECORDING AND MAINTENANCE

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

END OF SECTION 017839

## SECTION 078413 - PENETRATION FIRESTOPPING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Penetrations in fire-resistance-rated walls.
  - 2. Penetrations in horizontal assemblies.
  - 3. Joints in or between fire-resistance-rated constructions.
  - 4. Joints at exterior curtain-wall/floor intersections.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product Schedule: For each penetration firestopping system. Include location and design designation of qualified testing and inspecting agency.
  - 1. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Installer Certificates: From Installer indicating penetration firestopping has been installed in compliance with requirements and manufacturer's written recommendations.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for penetration firestopping.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements.

Manufacturer's willingness to sell its penetration firestopping products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.

- B. Fire-Test-Response Characteristics: Penetration firestopping shall comply with the following requirements:
  - 1. Penetration firestopping tests are performed by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Penetration firestopping is identical to those tested per testing standard referenced in "Penetration Firestopping" Article. Provide rated systems complying with the following requirements:
    - a. Penetration firestopping products bear classification marking of qualified testing and inspecting agency.
    - b. Classification markings on penetration firestopping correspond to designations listed by the following:
      - 1) UL in its "Fire Resistance Directory."
- C. Preinstallation Conference: Conduct conference at Project site.

## 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping when ambient or substrate temperatures are outside limits permitted by penetration firestopping manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

## 1.7 COORDINATION

- A. One installer entity shall perform all penetration firestopping and joint firestopping system installations required for the project.
- B. Coordinate construction of openings and penetrating items to ensure that penetration and joint firestopping is installed according to specified requirements.
- C. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping.
- D. Notify Owner's testing agency at least seven days in advance of penetration firestopping installations; confirm dates and times on day preceding each series of installations.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:



1. [3M Fire Protection Products.](#)
2. [Grace Construction Products; W.R. Grace & Co. -- Conn.](#)
3. [Hilti, Inc.](#)
4. [Tremco, Inc.](#)

## 2.2 PENETRATION FIRESTOPPING

- A. Provide penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
- B. Penetrations in Vertical Assemblies including Fire-Resistance-Rated Walls: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of **0.01-inch wg (2.49 Pa)**.
  1. Fire-resistance-rated walls include fire walls fire-barrier walls and fire partitions.
  2. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
- C. Penetrations in Horizontal Assemblies: Provide penetration firestopping with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of **0.01-inch wg (2.49 Pa)**.
  1. Horizontal assemblies include floors floor/ceiling assemblies and ceiling membranes of roof/ceiling assemblies.
    - a. Provide penetration firestopping at rated and not rated floor assemblies between floors and slab edge systems such as curtain wall assemblies as well as fire rated locations such as other horizontal floor/ceiling assemblies, roof assemblies, etc.
  2. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
  3. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
- D. Exposed Penetration Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- E. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
  1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-wool-fiber or rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  2. Temporary forming materials.

3. Substrate primers.
4. Collars.
5. Steel sleeves.

## 2.3 FILL MATERIALS

- A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and sloped surfaces, unless indicated firestopping limits use of nonsag grade for both opening conditions.

## 2.4 MIXING

- A. For those products requiring mixing before application, comply with penetration firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required),

type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## 2.5 JOINT FIRESTOPPING SYSTEMS

- A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
- B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E 1966 or UL 2079.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. 3M Fire Protection Products.
    - b. Hilti, Inc.
    - c. Specified Technologies, Inc.
  - 2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.
- C. Joints at Exterior Curtain-Wall/Floor Intersections: Provide joint firestopping systems with rating determined per ASTM E 2307.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. 3M Fire Protection Products.
    - b. Hilti, Inc.
    - c. Specified Technologies, Inc.
  - 2. F-Rating: Equal to or exceeding the fire-resistance rating of the floor assembly.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

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

### 3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing penetration firestopping to comply with manufacturer's written instructions and with the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.

2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
  3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent penetration firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping's seal with substrates.

### 3.3 INSTALLATION

- A. General: Install penetration firestopping and fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
- C. Install fill materials for firestopping by proven techniques to produce the following results:
1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
- D. Install elastomeric fill materials for fire-resistive joint systems by proven techniques to produce the following results:
1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
  2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
  3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches (76 mm) high and with minimum 0.375-inch (9.5-mm) strokes.
1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet (4.57 m) from end of wall and at intervals not exceeding 30 feet (9.14 m).
- B. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within **6 inches (150 mm)** of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Designation of applicable testing and inspecting agency.
  4. Date of installation.
  5. Manufacturer's name.
  6. Installer's name.
- C. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Designation of applicable testing agency.
  4. Date of installation.
  5. Manufacturer's name.
  6. Installer's name.

### 3.5 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2393.
- B. Where deficiencies are found or penetration firestopping is damaged or removed because of testing, repair or replace penetration firestopping to comply with requirements.
- C. Do not proceed with enclosing penetration firestopping with other construction until all inspection reports are issued and the above ceiling areas have been inspected by OSF. At double wall construction (where one wall is rated and the parallel wall is non-rated), provide minimum 8" x 8" access openings in the non-rated walls for installation and subsequent inspection of the firestopping.

- D. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

### 3.6 CLEANING AND PROTECTION

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

### 3.7 PENETRATION FIRESTOPPING SCHEDULE

- A. The Firestopping Subcontractor shall submit a Firestopping Schedule illustrating each proposed assembly and location for use to the Architect for review prior to installation.
  - 1. Provide a schedule of all rated all penetration assemblies and all floor penetrations associated with scope of work of this this bid package.
- B. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHEZ.
  - 1. Provide a schedule for the following:
    - a. Firestopping with No Penetrating Items
    - b. Firestopping for Metallic Pipes, Conduit, or Tubing
    - c. Firestopping for Nonmetallic Pipe, Conduit, or Tubing
    - d. Firestopping for Electrical Cables
    - e. Firestopping for Cable Trays with Electric Cables
    - f. Firestopping for Insulated Pipes
    - g. Firestopping for Miscellaneous Electrical Penetrants
    - h. Firestopping for Miscellaneous Mechanical Penetrants
    - i. Firestopping for Groupings of Penetrants
- C. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHBN or Category XHDG.
  - 1. Provide a schedule for the following:
    - a. Floor-to-Floor, Joint Firestopping Systems
    - b. Wall-to-Wall, Joint Firestopping Systems
    - c. Floor-to-Wall, Joint Firestopping Systems
    - d. Head-of-Wall, Fire-Resistive Joint Firestopping Systems
    - e. Bottom-of-Wall, Joint Firestopping Systems
    - f. Wall-to-Wall, Joint Firestopping Systems Intended for Use as Corner Guards
    - g. Perimeter Joint Firestopping Systems

END OF SECTION 078413

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Provide all labor, materials, equipment and supervision to construct complete and operable electrical systems as indicated on the drawings and specified herein.
- B. All materials and equipment used shall be new, undamaged and free from any defects.

1.2 RELATED DOCUMENTS AND OTHER INFORMATION

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the portions of work specified in each and every Section, individually and collectively.

1.3 PRODUCT WARRANTIES

- A. Provide manufacturer's standard printed commitment in reference to a specific product and normal application, stating that certain acts of restitution will be performed for the Purchaser or Owner by the manufacturer, when and if the product fails within certain operational conditions and time limits. Where the warranty requirements of a specific specification section exceeds the manufacturer's standard warranty, the more stringent requirements will apply and modified manufacturer's warranty shall be provided. In no case shall the manufacturer's warranty be less than one (1) year from the date of substantial completion.
  - 1. Where manufacturer's warranty lists a start date of PO or date of ship, contractor shall purchase extended warranty to ensure warranty period extends to a minimum of 1 year after date of substantial completion.

1.4 PRODUCT SUBSTITUTIONS

- A. General: Materials specified by manufacturer's name shall be used unless prior approval of an alternate is given by addenda. Requests for substitutions must be received in the office of the Architect at least 10 days prior to opening of bids.

1.5 SUBMITTAL REQUIREMENTS

- A. Submit for review by the Engineer Architect a schedule with engineering data of materials and equipment to be incorporated in the work. Submittals shall be supported by descriptive materials, i.e., catalog sheets, product data sheets, diagrams, performance curves and charts published by the manufacturer, warranties, etc., to show conformance to Specifications and Plan requirements; model numbers alone shall not be acceptable. Data submitted for review shall contain all information to indicate compliance with Contract Documents. Complete electrical characteristics shall be provided for all equipment. Submittals for lighting fixtures shall include Photometric Data. The Engineer reserves the right to require samples of any equipment to be submitted for review.
- B. The purpose of shop drawing review is to demonstrate to the Architect that the Contractor understands the design concept. The Architect's review of such drawings, schedules, or cuts

shall not relieve the Contractor from responsibility for deviations from the drawings or specifications unless he has, in writing, called the Architect's attention to such deviation at the time of submission, and received written permission from the Architect for such deviations.

- C. Where cut sheets include an entire product family, mark all specific items to be utilized for this project on equipment cut sheets. Generic cut sheets with no indication of which items on the cut sheet shall be used will be rejected.
- D. Response to Submittals: Shop drawings shall be noted with the following classifications:
  - 1. "Reviewed": No corrections, no marks. Contractor shall submit copies for distribution.
  - 2. "Provide as Corrected": A few minor corrections. Items may be ordered as marked up without further resubmission. Submit shall submit copies for distribution. Formally correct prior to submitting O&M manuals.
  - 3. "Revise and Resubmit": Minor corrections. Items may be ordered at the Contractor's option. Contractor shall resubmit documents with corrections noted.
  - 4. "Rejected": Major corrections required or not in accordance with the contract documents. Contractor shall correct and resubmit documents.

#### 1.6 ELECTRICAL DRAWINGS

- A. Electrical contract drawings are diagrammatic and indicate the general arrangement of electrical equipment. Do not scale electrical plans. Obtain all dimensions from the Architect's dimensioned drawings and field measurements. The Contractor shall review Architectural plans for door swings and built-in equipment; conditions indicated on those plans shall govern for this work.
- B. Coordinate installation of electrical equipment with the structural and mechanical equipment and access thereto. Coordinate exterior electrical work with civil and landscaping work.
- C. Discrepancies shown on different drawings, between drawings and specifications or between documents and field conditions shall be installed to provide the better quality or greater quantity of work; or, comply with the more stringent requirement; either or both in accordance with the A/E's interpretation.

#### 1.7 ELECTRICAL WORK SCHEDULE

- A. After the award of contract, the Contractor shall prepare a detailed schedule (aka milestone chart, or Gantt chart) for review by the Architect/Engineer and Owner at least 10-days prior to beginning work. The Contractor Project Schedule (CPS) shall indicate detailed activities for the projected life of the project. The CPS shall consist of detailed activities and their restraining relationships. It will also detail manpower usage throughout the project. Specific items shall include (but not limited to) the following:
  - 1. Date of on-site arrival of electrical equipment and accessories required for system installation.
  - 2. Estimated dates and duration of all service outages.
  - 3. Estimated start date and completion date for the demolition of each existing panelboard.
  - 4. Estimated start date and completion date for the installation of each panelboard.
  - 5. Estimated dates and duration of required work access to areas that are not in the



current phase, or scope of work.

#### 1.8 SUBMITTALS – GENERAL ELECTRICAL

- A. Electrical coordination drawings shall be provided as described below:
  - 1. Electrical Rooms: Provide layouts of all electrical rooms using the dimensions of equipment and accessories actually furnished. Locate all ducts and piping entering or crossing these spaces.
  - 2. Feeders over 100 Amps: The routing of main feeders is not shown on the drawings. Actual routing shall be determined by the contractor in accordance with the specifications and shall be coordinated with work by other trades. For underground lines, show all utility crossings.
  - 3. Drawings Format: Drawings shall be prepared at a scale of no less than 1/16"=1'-0" for feeder routes and 1/4"=1'-0" for electrical rooms / equipment yards. Drawing shall be titled to define Project Name, Drawing subject and date prepared. Drawings are to be prepared in AutoCAD or compatible software.
- B. Firestopping Submittals shall be provided for each proposed system type prior to installation. Submittal shall include the following:
  - 1. Firestopping Materials
  - 2. Firestopping Installation Drawings for each conduit penetration, cable in metal sleeve penetration, and blank metal sleeve penetration for each type of wall / floor construction encountered.

#### 1.9 SYSTEMS REQUIRING ROUGH-IN

- A. Rough-in shall consist of all outlet boxes/raceway systems/supports and sleeves required for the installation of cables/devices by other Divisions and by the Owner. It shall be the responsibility of this Contractor to determine the requirements by reviewing the contract documents and meeting with the Superintendent of the trade involved and Owner's representative to review submittal data, shop drawings, etc.
- B. Sealing of all sleeves, to meet the fire rating of the assembly, whether active or not, is work of this Division.

#### 1.10 EXISTING SERVICES AND FACILITIES

- A. Damage to Existing Services: Existing services and facilities damaged by the Contractor through negligence or through use of faulty materials or workmanship shall be promptly repaired, replaced, or otherwise restored to previous conditions by the Contractor without additional cost to the Owner.
- B. Interruption of Services: Interruptions of services necessary for connection to or modification of existing systems or facilities shall occur only at prearranged times approved by the Owner. Interruptions shall only occur after the provision of all temporary work and the availability of adequate labor and materials will assure that the duration of the interruption will not exceed the time agreed upon.
- C. Removed Materials: Existing materials made unnecessary by the new installation shall be stored on site. They shall remain the property of the Owner and shall be stored at a location

and in a manner as directed by the Owner. If classified by the Owner's authorized representative as unsuitable for further use, the material shall become the property of the Contractor and shall be removed from the site at no additional cost to the owner.

- D. Contractor shall review drawings for all trades for coordination with existing conditions. Contractor shall be responsible for routing of underground raceways and coordinate with GC and other trades for cutting and repair of existing slabs, parking areas, sidewalks, sheetrock and/or plaster walls, etc.
- E. Contractor shall be responsible for coordinating with contract documents and other trades for routing of ducts, pipes, cable-tray and other components with existing conditions. Contractor shall be responsible for field verifying source of raceways and cabling that are in conflict regardless of whether they serve devices in the area of work or not. The relocation of these raceways to assist in avoiding these conflicts shall also be included at no additional cost to the owner.
- F. Contractor shall protect all existing low-voltage cabling from damage. If conflicts arise, contact architect immediately to determine status of cabling. Existing cabling that is damaged during construction shall be replaced by the contractor.

## PART 2 - PRODUCTS

### 2.1 FIRESTOPPING:

- A. Refer to section 078413 for additional requirements.
- B. A firestop system shall be used to seal penetrations of electrical conduits and cables through fire-rated partitions per NEC 300.21, and NEC 800.26. The firestop system shall be qualified by formal performance testing in accordance with ASTM E-814, or UL 1479.
- C. The firestop system shall consist of a fire-rated caulk type substance and a high temperature fiber insulation. It shall be permanently flexible, waterproof, non-toxic, smoke and gas tight and have a high adhesion to all solids so damming is not required. Only metal conduit shall be used in conjunction with this system to penetrate fire rated partitions. Install in strict compliance with manufacturer's recommendations. 3M or approved equal.
- D. Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- E. Comply with BICSI TDMM, "Firestopping Systems" Article.

## PART 3 - EXECUTION

### 3.1 PRODUCT INSTALLATION, GENERAL

- A. Except where more stringent requirements are indicated, comply with the product manufacturer's installation instructions and recommendations, including handling, anchorage, assembly, connections, cleaning and testing, charging, lubrication, startup, test operation and shut-down of operating equipment. Consult with manufacturer's technical experts, for specific instructions on unique product conditions and unforeseen problems.

- B. Protection and Identification: Deliver products to project properly identified with names, models numbers, types, grades, compliance labels and similar information needed for distinct identifications; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the manufacturer specifically for exterior storage.
- C. Permits and Tests: Provide labor, material and equipment to perform all tests required by the governing agencies and submit a record of all tests to the Owner or his representative. Notify the Architect five days in advance of any testing.
- D. Install temporary protective covers over equipment enclosures, outlet boxes and similar items after interiors, conductors, devices, etc. are installed, to prevent the entry of construction debris and to protect the installation during finish work performed by others. Do not install device plates, equipment covers or trims until finish work is complete.
- E. Clean all equipment, inside and out, upon completion of the work. Scratched or marred surfaces shall be touched-up with touch-up paint furnished by the equipment manufacturer.
- F. Replace all equipment and materials that become damaged.
- G. No more than three phase conductors, each of opposite phases for a three phase WYE system, shall be combined in a single raceway unless written approval is granted by the engineer or noted otherwise on the construction documents. 120 volt and 277 volt receptacle and lighting circuits are except from this requirement, but must meet the requirements of the NEC.
- H. Shared neutrals shall not be utilized (including, but not limited to homeruns) unless written permission is obtained from the Engineer for a specific application.

### 3.2 EQUIPMENT PROTECTION

- A. Equipment and materials shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.
- B. Store equipment indoors in clean dry space with uniform temperature to prevent condensation. Equipment shall include but not be limited to switchgear, switchboards, panelboards, transformers, motor control centers, motor controllers, uninterruptible power systems, enclosures, controllers, circuit protective devices, cables, wire, light fixtures, electronic equipment, and accessories.
- C. During installation, equipment shall be protected against entry of foreign matter; and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.
- D. Damaged equipment shall be, as determined by the Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.
- E. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.

- F. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

3.3 UTILITY CONNECTIONS:

- A. Coordinate the connection of the electrical system with the local power company. Comply with the requirements of governing regulations, franchised service companies and controlling agencies. Pay all utility fees and charges.

3.4 ELECTRICAL WORK:

- A. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:
  1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
  2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.
  3. Before initiating any work, a job specific work plan must be developed by the contractor with a peer review conducted and documented by the Contractor. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used and exit pathways.
  4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Owner/ Architect.

END OF SECTION 260500

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes building wire and cable; and wiring connectors and connections.

1.2 REFERENCES

- A. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
  - 2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
- C. Underwriters Laboratories, Inc.:
  - 1. UL Standard 83 for Thermoplastic-Insulated Wires and Cables.
  - 2. UL Standard 44 for Thermoset-Insulated Wires and Cables.
  - 3. UL 514B – Standard for Conduit, Tubing, and Cable Fittings.
  - 4. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.
  - 5. UL 1569 – Standard for Metal-Clad Cables

1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
  - 1. Solid conductor for branch circuits 10 AWG and smaller.
  - 2. Stranded conductors for control circuits.
  - 3. Conductor not smaller than 12 AWG for power and lighting circuits.
  - 4. Conductor not smaller than 14 AWG for control circuits.
  - 5. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.
- B. Wiring Methods: Provide the following wiring methods:
  - 1. Use only building wire, Type THHN/THWN-2 insulation, in raceway unless specifically noted otherwise.

#### 1.4 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Requirements for submittals.
- B. Product Data for the following:
  - 1. Wire and Cable
  - 2. Splice Kits
  - 3. Waterproof Wire Connectors
- C. Test Reports: Indicate procedures and values obtained.

#### 1.5 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of components and circuits.

#### 1.6 QUALITY ASSURANCE

- A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet (1.5 m) when tested in accordance with NFPA 262.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Conform to requirements of NFPA 70.

#### 1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

#### 1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to work. Coordinate dimensions with architectural, structural, and civil drawings. Electrical Drawings are diagrammatic only and shall not be scaled.

#### 1.9 COORDINATION

- A. Division 01 Specifications - Administrative Requirements: Requirements for coordination.
- B. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

- C. Wire and cable routing indicated is approximate unless dimensioned. Include wire and cable lengths within 10 ft of length shown.

## PART 2 PRODUCTS

### 2.1 BUILDING WIRE

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Southwire
  - 2. AETNA.
  - 3. American Insulated Wire Corp.
  - 4. Colonial Wire
  - 5. General Cable Co.
  - 6. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Single conductor insulated wire.
- C. Conductor: Copper sizes #1 AWG and less.
- D. Insulation Voltage Rating: 600 volts.

### 2.2 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Division 01 Specification - Administrative Requirements: Coordination and project conditions.
- B. Verify interior of building has been protected from weather.
- C. Verify mechanical work likely to damage wire and cable has been completed.
- D. Verify raceway installation is complete and supported.

### 3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

### 3.3 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods compatible with existing electrical installations, or as specified.
- E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

### 3.4 INSTALLATION

- A. Route wire and cable to meet Project conditions.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- C. Identify wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:
  - 1. Pull conductors into raceway at same time.
  - 2. Install building wire 4 AWG and larger with pulling equipment.
- E. Special Techniques - Wiring Connections:
  - 1. Clean conductor surfaces before installing lugs and connectors.
  - 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
  - 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
  - 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
  - 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
  - 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
  - 7. Polaris type splice kits will not be accepted.



- F. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.
- G. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- H. For terminal lugs fastened together such as on transformers and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

### 3.5 WIRE COLOR

- A. General:
  - 1. For wire sizes 6 AWG and smaller, install wire with insulation colors as designated below.
  - 2. For wire sizes 4 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:

120/208-volt systems:	Phase A - Black
	Phase B - Red
	Phase C - Blue
	Neutral - White
	Ground - Green

277/480-volt systems:	Phase A - Orange
	Phase B - Brown
	Phase C - Yellow
	Neutral - Gray
	Ground - Green

### 3.6 FIELD QUALITY CONTROL

- A. Division 01 Specification - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

END OF SECTION 260519

## SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section Includes:
  - 1. Rod electrodes.
  - 2. Wire.
  - 3. Mechanical connectors.
  - 4. Exothermic connections.

#### 1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
  - 2. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- B. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
  - 2. NFPA 99 - Standard for Health Care Facilities.

#### 1.3 DESIGN REQUIREMENTS

- A. Construct and test grounding systems for access flooring systems on conductive floors accordance with IEEE 1100. Refer to Section 09 69 00.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: 5 ohms maximum.

#### 1.5 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on grounding electrodes and connections.
- C. Test Reports: Indicate overall resistance to ground and resistance of each electrode.

- D. Manufacturer's Installation Instructions: Submit for active electrodes.
- E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout: Requirements for submittals.
- B. Project Record Documents: Record actual locations of components and grounding electrodes.

#### 1.7 QUALITY ASSURANCE

- A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.

#### 1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing work of this section with minimum three years experience.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- D. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

#### 1.10 COORDINATION

- A. Division 01 Specifications - Administrative Requirements: Requirements for coordination.
- B. Complete grounding and bonding of building reinforcing steel prior concrete placement.

## PART 2 PRODUCTS

### 2.1 ROD ELECTRODES

- A. Product Description:
  - 1. Material: Copper-clad steel.
  - 2. Diameter: 3/4 inch (19 mm).
  - 3. Length: 10 feet (3.0 m).
- B. Connector: Connector for exothermic welded connection.

### 2.2 WIRE

- A. Material: Stranded copper.
- B. Foundation Electrodes: 4 AWG.
- C. Grounding Electrode Conductor: Copper conductor bare.
- D. Bonding Conductor: Copper conductor insulated.

### 2.3 MECHANICAL CONNECTORS

- A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.
  - 1. Bonding Jumpers: Compression type connectors, using zinc-plated fasteners and external tooth lock washers.
  - 2. Ground Busbars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.
  - 3. Rack and cabinet ground bars: One-hole compression type lugs using zinc-plated or copper alloy fasteners.

### 2.4 EXOTHERMIC CONNECTIONS

- A. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Division 01 Specifications - Administrative: Verification of existing conditions before starting work.
- B. Verify final backfill and compaction has been completed before driving rod electrodes.

### 3.2 PREPARATION

- A. Remove paint, rust, mill oils, and other surface contaminants at connection points.

### 3.3 EXISTING WORK

- A. Modify existing grounding system to maintain continuity to accommodate renovations.
- B. Extend existing grounding system using materials and methods compatible with existing electrical installations, or as specified.

### 3.4 INSTALLATION

- A. Install in accordance with IEEE 142 and IEEE 1100.
- B. Install rod electrodes at locations as indicated on Drawings. Install additional rod electrodes to achieve specified resistance to ground.
- C. Install grounding and bonding conductors concealed from view.
- D. Install grounding electrode conductor and connect to reinforcing steel in foundation footing. Electrically bond steel together. If it is determined that the reinforcing steel cannot be made electrically continuous, install a 4 AWG bare copper conductor in foundation footing around the perimeter of the building.
- E. Bond together metal siding not attached to grounded structure; bond to ground.
- F. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- G. Bond to lightning protection system. Refer to Section 26 41 00.
- H. Install continuous grounding using underground cold water system and building steel as grounding electrode. Where water piping is not available, install artificial station ground by means of driven rods or buried electrodes.
- I. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.
- J. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding bus.

- K. Grounding electrical system using continuous metal raceway system enclosing circuit conductors in accordance with NEC.
- L. Permanently attach equipment and grounding conductors prior to energizing equipment.

3.5 FIELD QUALITY CONTROL

- A. Division 01 Specifications - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- D. Perform ground resistance testing in accordance with IEEE 142.
- E. Perform continuity testing in accordance with IEEE 142.
- F. When improper grounding is found on receptacles, check receptacles in entire project and correct. Perform retest.

END OF SECTION 260526

## SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section Includes:
  - 1. Conduit and equipment supports.
  - 2. Anchors and fasteners.

#### 1.2 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- C. Product Data:
  - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
- D. Design Data: Indicate load carrying capacity of trapeze hangers and hangers and supports.
- E. Manufacturer's Installation Instructions:
  - 1. Hangers and Supports: Submit special procedures and assembly of components.

#### 1.3 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

### PART 2 PRODUCTS

#### 2.1 CONDUIT SUPPORTS

- A. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

- B. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- C. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.
- D. Conduit clamps - general purpose: One hole malleable iron for surface mounted conduits.
- E. Cable Ties: High strength nylon temperature rated to 185 degrees F (85 degrees C). Self locking.

## 2.2 FORMED STEEL CHANNEL

- A. Product Description: Galvanized 12 gage (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

## 2.3 SPRING STEEL CLIPS

- A. Product Description: Mounting hole and screw closure.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Division 01 Specifications - Administrative Requirements: Verification of existing conditions before starting work.

### 3.2 PREPARATION

- A. The use of powder-actuated anchors is not allowed.
- B. Do not drill or cut structural members.

### 3.3 INSTALLATION - HANGERS AND SUPPORTS

- A. Anchors and Fasteners:
  - 1. Concrete Structural Elements: Provide precast inserts, expansion anchors and preset inserts.
  - 2. Steel Structural Elements: Provide beam clamps, spring steel clips, and steel ramset fasteners.
  - 3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.
  - 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts and hollow wall fasteners.
  - 5. Solid Masonry Walls: Provide expansion anchors and preset inserts.
  - 6. Sheet Metal: Provide sheet metal screws.
  - 7. Wood Elements: Provide wood screws.
- B. Inserts:



1. Install inserts for placement in concrete forms.
  2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
  3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches (100 mm).
  4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
  5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.
- C. Install conduit and raceway support and spacing in accordance with NEC.
- D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- E. Install multiple conduit runs on common hangers.
- F. Supports:
1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
  2. Install surface mounted cabinets and panelboards with minimum of four anchors.
  3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch (25 mm) off wall.
  4. Support vertical conduit at every other floor.
- 3.4 INSTALLATION - EQUIPMENT BASES AND SUPPORTS
- A. Provide housekeeping pads of concrete, minimum 3-1/2 inches (87 mm) thick and extending 6 inches (150 mm) beyond supported equipment. Refer to Section 03 30 00.
  - B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.
  - C. Construct supports of steel members. Brace and fasten with flanges bolted to structure.
- 3.5 FIELD QUALITY CONTROL
- A. Division 01 Specifications - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- 3.6 PROTECTION OF FINISHED WORK
- A. Division 01 Specifications - Execution and Closeout Requirements: Requirements for protecting finished Work.
  - B. Protect adjacent surfaces from damage by material installation.

END OF SECTION 260529

## SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes conduit and tubing, surface raceways, wireways, outlet boxes, pull and junction boxes, and handholes.

#### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
  - 2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
- B. National Electrical Manufacturers Association:
  - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
  - 2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
  - 3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
  - 4. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
  - 5. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
  - 6. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

#### 1.3 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. Underground: Provide thin-wall nonmetallic conduit (schedule 40 PVC) with rigid long-sweep 90-degree elbows unless specifically noted otherwise. Provide cast metal boxes or nonmetallic handhole.
- C. Outdoor Locations, Above Grade: Provide galvanized rigid steel conduit. Provide cast metal outlet, pull, and junction boxes.
- D. Interior Wet and Damp Locations: Provide galvanized rigid steel conduit. Provide cast metal outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.
- E. Concealed Dry Locations: Provide electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

- F. Exposed Dry Locations in unfinished spaces: Provide rigid steel or intermediate metal conduit where subject to damage (see below for defined locations that are subject to damage), electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.
  - 1. Spaces defined as subject to physical damage are as follows:
    - a. Mechanical Rooms below 10' above finished floor.
    - b. Loading Docks.
    - c. Any area with forklift traffic.

#### 1.4 DESIGN REQUIREMENTS

- A. Minimum Raceway Size: 3/4 inch (19 mm) unless otherwise specified.

#### 1.5 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit for the following:
  - 1. Flexible metal conduit.
  - 2. Liquidtight flexible metal conduit.
  - 3. Nonmetallic conduit.
  - 4. Conduit bodies.
  - 5. Wireway.
  - 6. Handholes.
- C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents:
  - 1. Record actual routing of conduits larger than 2 inch (DN50).
  - 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications - Product Requirements: Product storage and handling requirements.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- C. Protect PVC conduit from sunlight.

## 1.8 COORDINATION

- A. Division 01 Specifications - Administrative Requirements: Coordination and project conditions.
- B. Coordinate installation of outlet boxes for equipment connected under Section 26 05 03.
- C. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers listed below are basis of design, or can provide products equal to basis of design.
  - 1. Carlon Electrical Products.
  - 2. Hubbell Wiring Devices.
  - 3. Thomas & Betts Corp.
  - 4. Walker Systems Inc.
  - 5. The Wiremold Co.
  - 6. Substitutions: Division 01 Specifications - Product Requirements.

### 2.2 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Intermediate Metal Conduit (IMC): Rigid steel.
- C. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.

### 2.3 PVC COATED METAL CONDUIT

- A. Product Description: NEMA RN 1; rigid steel conduit with external PVC coating, 20 mil (0.05 mm) thick.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.

### 2.4 FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction.
- B. Fittings: NEMA FB 1.

### 2.5 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction with PVC jacket.

- B. Fittings: NEMA FB 1.

## 2.6 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel compression type.
- C. All EMT conduit shall be Anodized with the following color coating:
  - 1. Emergency Life Safety Power: Yellow
  - 2. Emergency Critical Power: Orange
  - 3. Normal Power: Silver

## 2.7 WIREWAY

- A. Product Description: General purpose for interior locations, and Raintight type for exterior locations wireway.
- B. Cover: Hinged cover with full gaskets.
- C. Finish: Rust inhibiting primer coating with gray enamel finish.

## 2.8 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- B. Hinged Enclosures: As specified in Section 26 27 16.
- C. Surface Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface mounted junction box:
  - 1. Material: Galvanized cast iron.
  - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
- D. Fiberglass Concrete composite Handholes: Die-molded, glass-fiber concrete composite hand holes:
  - 1. Cable Entrance: Pre-cut 6 inch x 6 inch (150 mm x 150 mm) cable entrance at center bottom of each side.
  - 2. Cover: Glass-fiber concrete composite, weatherproof cover with nonskid finish.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Division 01 Specifications - Administrative Requirements: Coordination and project conditions.

- B. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

### 3.2 EXISTING WORK

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- D. Extend existing raceway and box installations using materials and methods compatible with existing electrical installations, or as specified.
- E. Clean and repair existing raceway and boxes to remain or to be reinstalled.

### 3.3 INSTALLATION

- A. Ground and bond raceway and boxes in accordance with Section 26 05 26.
- B. Fasten raceway and box supports to structure and finishes in accordance with Section 26 05 29.
- C. Identify raceway and boxes in accordance with Section 26 05 53.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.
- E. Do not install raceways or boxes within 1-1/2" of roof decking to prevent damage from roof installation or repair.

### 3.4 INSTALLATION - RACEWAY

- A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- B. Arrange raceway supports to prevent misalignment during wiring installation.
- C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- D. Group related raceway; support using conduit rack. Construct rack using steel channel specified in Section 26 05 29; provide space on each for 25 percent additional raceways.
- E. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- F. Do not attach raceway to ceiling support wires or other piping systems.

- G. Construct wireway supports from steel channel specified in Section 26 05 29.
- H. Route exposed raceway parallel and perpendicular to walls.
- I. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- J. Maintain clearance between raceway and piping for maintenance purposes.
- K. Maintain 12 inch (300 mm) clearance between raceway and surfaces with temperatures exceeding 104 degrees F (40 degrees C).
- L. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- M. Bring conduit to shoulder of fittings; fasten securely.
- N. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.
- O. Install conduit hubs or sealing locknuts to fasten conduit to cast boxes.
- P. Install no more than equivalent of three 90 degree bends between boxes for power systems. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.
- Q. Install no more than equivalent of two 90 degree bends between boxes for communications systems. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2 inch (50 mm) size.
- R. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- S. Install fittings to accommodate expansion and deflection where raceway crosses seismic, control and expansion joints.
- T. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- U. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- V. Close ends and unused openings in wireways, junction boxes, and pull boxes.

### 3.5 INSTALLATION - BOXES

- A. Install wall mounted boxes at elevations to accommodate mounting heights as indicated on Drawings.
- B. Adjust box location up to 10 feet (3 m) prior to rough-in to accommodate intended purpose.

- C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- D. In Accessible Ceiling Areas: Install junction boxes no more than 6 inches (150 mm) from ceiling access panel or from removable recessed luminaire.
- E. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- F. Install stamped steel bridges to fasten flush mounting outlet box between studs.
- G. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- H. Do not fasten boxes to ceiling support wires or other piping systems.
- I. Support boxes independently of conduit.
- J. Do not install junction boxes or pull boxes at locations that can be accessed through existing ceiling with a standard ladder. Maximum height of junction boxes above accessible ceiling or through an access panel in a non-accessible is 4' above top of ceiling frame.

### 3.6 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods in accordance with Section 07 84 00.
- B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installer.

### 3.7 ADJUSTING

- A. Division 01 Specifications - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Install knockout closures in unused openings in boxes.

### 3.8 CLEANING

- A. Division 01 Specifications - Execution and Closeout Requirements: Final cleaning.
- B. Clean interior of boxes to remove dust, debris, and other material.
- C. Clean exposed surfaces and restore finish.

END OF SECTION



## SECTION 260548 – VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 ELECTRICAL DIVISIONS

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.

#### 1.2 SUBMITTALS

- A. Submit seismic force level (Fp) calculations from applicable building code.
- B. Submit pre-approved restraint selections and installation details
- C. Restraint selection and installation details shall be sealed by a professionally licensed engineer experienced in seismic restraint design.
- D. Submit manufacturer's product data on strut channels including, but not limited to, types, materials, finishes, gauge thickness, and hole patterns. For each different strut cross-section, submit cross sectional properties including Section Modulus (Sx) and Moment of Inertia (Ix).
- E. Field reports

#### 1.3 QUALITY ASSURANCE

- A. Submittals must be signed and sealed shop drawings from a professional engineer licensed in the state that the project is located in. Shop drawings to include project specific details, sketches, product data cut sheets.
- B. The contractor shall provide pre-engineered seismic restraint systems to meet total design lateral force requirements for support and restraint of piping, conduit, cable trays and other similar systems and equipment where required by the applicable building code.
- C. System Supports/Restraints Manufacturers shall be firms regularly engaged in the manufacture of products of the types specified in this section, whose products have been in satisfactory use in similar service for not less than 5 years.

### PART 2 - PRODUCT

#### 2.1 SEISMIC BRACING

- A. General:
  - 1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
  - 2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
  - 3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.

4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the details and notes on the construction documents

- B. Friction from gravity loads shall not be considered resistance to seismic forces.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data
- B. Installation of seismic restraints shall not cause any change in position of equipment or piping, resulting in stresses or misalignment.
- C. No rigid connections between equipment and the building structure shall be made that degrade the noise and vibration-isolation system specified.
- D. Do not install any equipment, piping, duct, or conduit that makes rigid connections with the building.
- E. Prior to installation, bring to the architect's/engineer's attention any discrepancies between the specifications and the field conditions, or changes required due to specific equipment selection.
- F. Bracing may occur from flanges of structural beams, upper truss cords of bar joists, cast in place inserts, or wedge-type concrete anchors. Consult structural engineer of record.
- G. Overstressing of the building structure shall not occur from overhead support of equipment. Bracing attached to structural members may present additional stresses. The contractor shall submit loads to the structural engineer of record for approval in this event.
- H. Brace support rods when necessary to accept compressive loads. Welding of compressive braces to the vertical support rods is not acceptable.
- I. Provide reinforced clevis bolts where required.
- J. Seismic restraints shall be mechanically attached to the system. Looping restraints around the system is not acceptable.
- K. Do not brace a system to two independent structures such as a ceiling and wall.
- L. Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement.
- M. Provide seismic controls as required for all existing electrical items exposed during renovations.

#### 3.2 FIELD QUALITY CONTROL

- A. Inspect all seismic supports after installation and submit a report from a professional engineer licensed in the state that the project is located in.

END OF SECTION 260548

## SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section Includes:
  - 1. Nameplates.
  - 2. Labels.
  - 3. Wire markers.
  - 4. Underground Warning Tape.
  - 5. Lockout Devices.

#### 1.2 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept identification products on site in original containers. Inspect for damage.
- C. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

#### 1.3 ENVIRONMENTAL REQUIREMENTS

- A. Division 01 Specifications - Product Requirements: Environmental conditions affecting products on site.
- B. Install nameplates and labels only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

### PART 2 PRODUCTS

#### 2.1 NAMEPLATES

- A. Product Description: Laminated three-layer plastic with engraved letters on contrasting background color. See specification sections for specific equipment for nameplate color schemes. If no color scheme is specified for specific equipment, provide black letters on a white background.
- B. Letter Size:
  - 1. 1/8 inch (3 mm) high letters for identifying individual equipment and loads.

- C. Minimum nameplate thickness: 1/8 inch (3 mm).

## 2.2 LABELS

- A. Labels: Embossed adhesive tape, with 3/16 inch (5 mm) white letters on black background.

## 2.3 WIRE MARKERS

- A. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.
  1. Width: 3/16 inch (5 mm).
  2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 7000 psi (48.2 MPa).
  3. UL 94 Flame Rating: 94V-0.
  4. Temperature Range: -50 deg F to +284 deg F (-46 deg C to +140 deg C).

## 2.4 UNDERGROUND WARNING TAPE

- A. Description: 4 inch (100 mm) wide plastic tape, detectable type, colored yellow with suitable warning legend describing buried electrical lines.

## 2.5 LOCKOUT DEVICES

- A. Lockout Hasps:
  1. Reinforced nylon hasp with erasable label surface; size minimum 7-1/4 x 3 inches (184 x 75 mm).

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

### 3.2 EXISTING WORK

- A. Install identification on unmarked existing equipment.

### 3.3 INSTALLATION

- A. Install identifying devices after completion of painting.
- B. Nameplate Installation:
  1. Install nameplate parallel to equipment lines.
  2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
  3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
  4. Secure nameplate to equipment front using screws, or adhesive.

5. Install nameplates for the following:
  - a. Switchboards.
  - b. Panelboards.
  - c. Transformers.
  - d. Disconnect Switches.
  - e. Enclosed Circuit Breakers.
  - f. Transfer Switches.
  - g. Lighting Control Panels.
  
- C. Label Installation:
  1. Install label parallel to equipment lines.
  2. Install label for identification of individual control device stations.
  3. Install labels for permanent adhesion and seal with clear lacquer.
  
- D. Wire Marker Installation:
  1. Install wire marker for each conductor at panelboard gutters, pull boxes, and each load connection.
  2. Mark data cabling at each end. Install additional marking at accessible locations along the cable run.
  3. Install labels at data outlets identifying patch panel and port designation.
  
- E. Underground Warning Tape Installation:
  1. Install underground warning tape along length of each underground conduit, raceway, or cable 6 to 8 inches (150 to 200 mm) below finished grade, directly above buried conduit, raceway, or cable.

END OF SECTION

SECTION 260574 - SHORT CIRCUIT, OVERCURRENT PROTECTION, ARC FLASH HAZARD ANALYSIS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. This Section includes computer-based, fault-current and overcurrent protective device coordination studies. Protective devices shall be set based on results of the protective device coordination study.

1.3 SUBMITTALS

- A. Provide Study as outlined in the following specifications.
- B. In addition to what is required in the project manual for submittals, a minimum of one hard copy of submittal package shall be provided to the engineer.

1.4 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are not acceptable.
- B. Coordination-Study Specialist Qualifications: An entity experienced in the application of computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
  - 1. Registered Professional engineer, licensed in the state where Project is located, shall be responsible for the study. All elements of the study shall be performed under the direct supervision and control of the engineer.

1.5 REFERENCES

- A. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems
  2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
  3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis
  4. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings
  5. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems
  6. IEEE 1584 – Guide for Performing Arc-Flash Hazard Calculations
- B. American National Standards Institute (ANSI):
1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
  2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures
  3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis
  4. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories
  5. ANSI C37.5 – Methods for Determining the RMS Value of a Sinusoidal Current Wave and Normal-Frequency Recovery Voltage, and for Simplified Calculation of Fault Currents
- C. The National Fire Protection Association (NFPA)
1. NFPA 70 - National Electrical Code, latest edition
    - a. NFPA 70E – Standard for Electrical Safety in the Workplace

## PART 2 - PRODUCTS

### 2.1 STUDIES

- A. Contractor to furnish short-circuit and protective device coordination studies as prepared by equipment manufacturer. By using the equipment manufacturer the study allows coordination of proper breakers, fuses, and current transformers. The coordination study shall begin with the utility company's feeder protective device and include all of the electrical protective devices down to and include the largest feeder circuit breaker, power distribution panelboards, and include all new and existing elevator protective devices. The study shall also include variable frequency drives, and protective devices associated with variable frequency drives.
- B. The contractor shall furnish an Arc Flash Hazard Analysis Study per NFPA 70E - Standard for Electrical Safety in the Workplace, reference Article 130.3 and Annex D.



## 2.2 DATA COLLECTION

- A. Contractor shall furnish all field data as required by the power system studies. The Engineer performing the short-circuit, protective device coordination and arc flash hazard analysis studies shall furnish the Contractor with a listing of required data immediately after award of the contract. The Contractor shall expedite collection of the data to eliminate unnecessary delays and assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to the release of the equipment for manufacturing.
- B. Source combination may include present and future utility supplies, motors, and generators.
- C. Load data utilized may include existing and proposed loads obtained from Contract Documents provided by Owner or Contractor.
- D. Include fault contribution of existing motors in the study, with motors < 50 hp grouped together. The Contractor shall obtain required existing equipment data, if necessary, to satisfy the study requirements.

## 2.3 SHORT-CIRCUIT AND PROTECTIVE DEVICE EVALUATION STUDY

- A. Use actual conductor impedances if known. If unknown, use typical conductor impedances based on IEEE Standards 141, latest edition.
- B. Provide the following:
  - 1. Calculation methods and assumptions
  - 2. Selected base per unit quantities
  - 3. One-line diagram of the system being evaluated with available fault at each bus, and interrupting rating of devices noted
  - 4. Source impedance data, including electric utility system and motor fault contribution characteristics
  - 5. Typical calculations
  - 6. Tabulations of calculated quantities
  - 7. Results, conclusions, and recommendations
- C. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault at each:
  - 1. Electric utility's supply termination point
  - 2. Incoming switchboard
  - 3. Branch circuit panelboards
  - 4. Other significant locations throughout the system
- D. For grounded systems, provide a bolted line-to-ground fault current study for areas as defined for the three-phase bolted fault short-circuit study.
- E. Protective Device Evaluation:
  - 1. Evaluate equipment and protective devices and compare to short circuit ratings
  - 2. Adequacy of switchboards and panelboard bus bracing to withstand short-circuit stresses
  - 3. Cable and busway sizes for ability to withstand short-circuit heating

4. Notify Owner in writing, of existing, circuit protective devices improperly rated for the calculated available fault current

#### 2.4 PROTECTIVE DEVICE COORDINATION STUDY

- A. Proposed protective device coordination time-current curves shall be graphically displayed on log-log scale paper.
- B. Include on each curve sheet a complete title and one-line diagram with legend identifying the specific portion of the system covered.
- C. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which device is exposed.
- D. Identify device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
- E. Plot the following characteristics on the curve sheets, where applicable:
  1. Electric utility's protective device
  2. Low voltage equipment circuit breaker trip devices, including manufacturer's tolerance bands
  3. Conductor damage curves
  4. Ground fault protective devices, as applicable
  5. Pertinent motor starting characteristics and motor damage points
  6. Other system load protective devices for the largest branch circuit and the largest feeder circuit breaker in each motor control center
- F. Provide adequate time margins between device characteristics such that selective operation is provided, while providing proper protection.

#### 2.5 ARC FLASH HAZARD ANALYSIS

- A. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E-2004, Annex D.
- B. When appropriate, the short circuit calculations and the clearing times of the phase overcurrent devices will be retrieved from the short-circuit and coordination study model. Alternative methods shall be presented in the proposal.
- C. The flash protection boundary and the incident energy shall be calculated at all significant locations in the electrical distribution system (switchboards, panelboards, busway and splitters) where work could be performed on energized parts.
- D. The Arc-Flash Hazard Analysis shall include all switchboards and panelboards in 208 volt systems.
- E. Safe working distances shall be specified for calculated fault locations based upon the calculated arc flash boundary considering an incident energy of 1.2 cal/cm<sup>2</sup>.

- F. The Arc Flash Hazard analysis shall include calculations for maximum and minimum contributions of fault current magnitude. The minimum calculation shall assume that the utility contribution is at a minimum and shall assume a minimum motor load. Conversely, the maximum calculation shall assume a maximum contribution from the utility and shall assume motors to be operating under full-load conditions.
- G. Arc flash computation shall include both line and load side of main breaker calculations, where necessary.
- H. Arc Flash calculations shall be based on actual overcurrent protective device clearing time. Maximum clearing time will be capped at 2 seconds based on IEEE 1584-2002 section B.1.2.

## 2.6 REPORT SECTIONS

- A. Input Data:
  - 1. Utility three-phase and line-to-ground available contribution with associated X/R ratios
  - 2. Short-circuit reactance of rotating machines with associated X/R ratios
  - 3. Cable type, construction, size, # per phase, length, impedance and conduit type
- B. Short-Circuit Data:
  - 1. Source fault impedance
  - 2. X to R ratios
  - 3. Asymmetry factors
  - 4. Motor contributions
  - 5. Short circuit Kva
  - 6. Symmetrical and asymmetrical fault currents
- C. Recommended Protective Device Settings:
  - 1. Phase and Ground Relays:
    - a. Current transformer ratio.
    - b. Current setting.
    - c. Time setting.
    - d. Instantaneous setting.
    - e. Specialty non-overcurrent device settings.
    - f. Recommendations on improved relaying systems, if applicable.
  - 2. Circuit Breakers:
    - a. Adjustable pickups and time delays (long time, short time, ground).
    - b. Adjustable time-current characteristic.
    - c. Adjustable instantaneous pickup.
    - d. Recommendations on improved trip systems, if applicable.
- D. Incident energy and flash protection boundary calculations:
  - 1. Arcing fault magnitude
  - 2. Device clearing time
  - 3. Duration of arc
  - 4. Arc flash boundary
  - 5. Working distance
  - 6. Incident energy
  - 7. Hazard Risk Category

8. Recommendations for arc flash energy reduction

PART 3 - EXECUTION

3.1 FIELD ADJUSTMENT

- A. Adjust relay and protective device settings according to the recommended settings table provided by the coordination study. Field adjustments to be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.
- B. Make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.
- C. Notify Architect / Engineer in writing of any required major equipment modifications.
- D. Following completion of all studies, acceptance testing and startup by the field engineering service division of the equipment manufacturer, a 2-year warranty shall be provided on all components manufactured by the engineering service parent manufacturing company.

3.2 ARC FLASH WARNING LABELS

- A. The vendor shall provide a 3.5 in. x 5 in. thermal transfer type label of high adhesion polyester for each work location analyzed.
- B. The label shall have an orange header with the wording, “WARNING, ARC FLASH HAZARD”, and shall include the following information:
  - 1. Location designation
  - 2. Nominal voltage
  - 3. Flash protection boundary
  - 4. Hazard risk category
  - 5. Incident energy
  - 6. Working distance
  - 7. Engineering report number, revision number and issue date
- C. Labels shall be machine printed, with no field markings
- D. Arc flash labels shall be provided in the following manner and all labels shall be based on recommended overcurrent device settings.
  - 1. For each 208 volt panelboard, one arc flash label shall be provided
  - 2. For each low voltage switchboard, one arc flash label shall be provided
- E. Labels shall be field installed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.

3.3 ARC FLASH TRAINING

- A. The equipment vendor shall train personnel of the potential arc flash hazards associated with working on energized equipment (minimum of 4 hours). Maintenance procedures in accordance with the requirements of NFPA 70E, Standard For Electrical Safety Requirements For Employee Workplaces, shall be provided in the equipment manuals. The training shall be certified for continuing education units (CEUs) by the International Association for Continuing Education Training (IACET).

END OF SECTION

## SECTION 26 05 83 - EQUIPMENT WIRING CONNECTIONS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes electrical connections to equipment.

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA WD 1 - General Requirements for Wiring Devices.
  - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

#### 1.3 SUBMITTALS

- A. Division 01 Specification - Submittal Procedures.
- B. Product Data: Submit wiring device manufacturer's catalog information showing dimensions, configurations, and construction.
- C. Signed Letter from Contractor indicating that shop drawings have been reviewed for all equipment requiring electrical connections that are furnished by other divisions prior to ordering equipment.
- D. Manufacturer's installation instructions.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Division 01 Specification - Execution and Closeout Requirements.
- B. Project Record Documents: Record actual locations, sizes, and configurations of equipment connections.

#### 1.5 COORDINATION

- A. Division 01 Specification - Administrative Requirements: Coordination and project conditions.
- B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.

- C. Prior to ordering electrical gear, compare to electrical requirements listed on electrical drawings for each piece of equipment. Notify architect / engineer immediately of any changes.
- D. Determine connection locations and requirements.
- E. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- F. Sequence electrical connections to coordinate with start-up of equipment.

## PART 2 PRODUCTS

### 2.1 EQUIPMENT REQUIRING ELECTRICAL SERVICE

- A. Provide electrical connections for all electrically driven equipment. Final connections are electrical work, unless specifically noted otherwise. Obtain a copy of the shop drawings of equipment. Review shop drawings to verify electrical characteristics and to determine rough-in requirements, final connection requirements, location of disconnect switch, etc. Notify the General Contractor if the information received is ambiguous or incomplete. Keep a copy of these shop drawings at the project site throughout the course of construction.
- B. The design of circuits for electrically driven equipment is based on the product of one manufacturer and may not be representative of all acceptable manufacturers. If equipment furnished has differing characteristics, make necessary adjustments to circuit components at no additional cost to the Owner, subject to the approval of the Architect.
- C. Provide motor starters and disconnects for all mechanical equipment unless provided by the mechanical contractor.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Division 01 Specification - Administrative Requirements: Coordination and project conditions.
- B. Verify equipment is ready for electrical connection, for wiring, and to be energized.

### 3.2 EXISTING WORK

- A. Remove exposed abandoned equipment wiring connections, including abandoned connections above accessible ceiling finishes.
- B. Disconnect abandoned utilization equipment and remove wiring connections. Remove abandoned components when connected raceway is abandoned and removed. Install blank cover for abandoned boxes and enclosures not removed.

- C. Extend existing equipment connections using materials and methods as specified.

### 3.3 INSTALLATION

- A. Make electrical connections.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Install disconnect switches to complete equipment wiring requirements.
- E. Install terminal block jumpers to complete equipment wiring requirements.
- F. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

### 3.4 ADJUSTING

- A. Division 01 Specification - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION 260583



## SECTION 26 22 00 - LOW-VOLTAGE TRANSFORMERS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes two-winding transformers; shielded transformers; autotransformers; and buck-and-boost transformers.

#### 1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA ST 1 - Specialty Transformers (Except General Purpose Type).
  - 2. NEMA ST 20 - Dry Type Transformers for General Applications.
- B. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

#### 1.3 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit outline and support point dimensions of enclosures and accessories, unit weight, voltage, kVA, and impedance ratings and characteristics, tap configurations, insulation system type, and rated temperature rise.
- C. Test Reports: Indicate loss data, efficiency at 25, 50, 75 and 100 percent rated load, and sound level.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of transformers.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 Specifications - Product Requirements: Product storage and handling requirements.
- B. Store in clean, dry space. Maintain factory wrapping or provide additional canvas or plastic cover to protect units from dirt, water, construction debris, and traffic.
- C. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. Square D.
  - 2. Eaton.
  - 3. General Electric.
  - 4. Substitutions: Division 01 Specifications - Product Requirements.

### 2.2 DRY-TYPE DISTRIBUTION TRANSFORMERS

- A. Product Description: NEMA ST 20, factory-assembled, air-cooled, dry type transformers, ratings as indicated on Drawings.
- B. Insulation system and average winding temperature rise for rated kVA as follows:
  - 1. 1-15 kVA: Class 185 with 115 degrees C rise.
  - 2. 16-500 kVA: Class 220 with 150 degrees C rise.
- C. Case temperature: Do not exceed 35 degrees C rise above ambient at warmest point at full load.
- D. Winding Taps:
  - 1. Transformers Less than 15 kVA: Two 5 percent below rated voltage, full capacity taps on primary winding.
  - 2. Transformers 15 kVA and Larger: NEMA ST 20.
- E. Sound Levels: NEMA ST 20.
- F. Basic Impulse Level: 10 kV for transformers less than 300 kVA, 30 kV for transformers 300 kVA and larger.
- G. Ground core and coil assembly to enclosure by means of visible flexible copper grounding strap and manufacturer provided grounding terminal on enclosure.

- H. Where scheduled on drawings, provide electrostatic winding shield, with separate insulated grounding connection.
- I. Mounting:
  - 1. 1-15 kVA: Suitable for wall mounting.
  - 2. 16-75 kVA: Suitable for wall, floor, or trapeze mounting.
  - 3. Larger than 75 kVA: Suitable for floor or trapeze mounting.
- J. Coil Conductors: Continuous copper windings with terminations brazed or welded.
- K. Enclosure: NEMA ST 20, Type 1. Furnish lifting eyes or brackets.
- L. Isolate core and coil from enclosure using vibration-absorbing mounts.
- M. Nameplate: Include transformer connection data and overload capacity based on rated allowable temperature rise.

### 2.3 BUCK-AND-BOOST TRANSFORMERS

- A. Product Description: NEMA ST 1, factory-assembled, dry type two winding buck and boost transformers, ratings as indicated on Drawings.
- B. Insulation system and average winding temperature rise for rated kVA as follows:
  - 1. 0.25-2 kVA: Class 185 with 80 degrees C rise.
  - 2. 3-7.5 kVA: Class 220 with 115 degrees C rise.
- C. Mounting: Wall.
- D. Coil Conductors: Continuous copper windings.
- E. Lugs: Suitable for terminating conductors sized for full load ampacity of transformer unit when operating in buck-and-boost configuration shown.
- F. Enclosure: NEMA ST 1, Type 1.
- G. Isolate core and coil from enclosure using vibration-absorbing mounts.
- H. Nameplate: Include transformer connection data.

### 2.4 SOURCE QUALITY CONTROL

- A. Production test each unit according to NEMA ST20.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Division 01 Specifications - Administrative Requirements: Coordination and project conditions.
- B. Verify mounting supports are properly sized and located including concealed bracing in walls.

#### 3.2 EXISTING WORK

- A. Disconnect and remove abandoned transformers.
- B. Maintain access and adequate ventilation to existing transformers and other installations remaining active and requiring access and ventilation. Modify installation or provide access panel or ventilation grilles.

#### 3.3 INSTALLATION

- A. Set transformer plumb and level.
- B. Use flexible conduit, in accordance with Section 26 05 33, 2 feet (600 mm) minimum length, for connections to transformer case.
- C. Make conduit connections to side panel of enclosure for sizes 150kva and less. For transformers over 150kva, conduit may enter bottom of enclosure.
- D. Support transformers in accordance with Section 26 05 29.
  - 1. Mount wall-mounted transformers using integral flanges or accessory brackets furnished by manufacturer.
  - 2. Mount floor-mounted transformers on vibration isolating pads suitable for isolating transformer noise from building structure.
  - 3. Mount trapeze-mounted transformers as indicated on Drawings.
- E. Provide seismic restraints.
- F. Install grounding and bonding in accordance with Section 26 05 26.

#### 3.4 FIELD QUALITY CONTROL

- A. Division 01 Specifications - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.2.1.

3.5 ADJUSTING

- A. Division 01 Specifications - Execution and Closeout: Testing, adjusting, and balancing.
- B. Measure primary and secondary voltages and make appropriate tap adjustments.

END OF SECTION 262200

SECTION 26 24 13

SWITCHBOARDS

PART 1 GENERAL

1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.

1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C12.1 - Code for Electricity Metering.
  - 2. ANSI C39.1 - Requirements, Electrical Analog Indicating Instruments.
- B. Institute of Electrical and Electronics Engineers:
  - 1. IEEE C57.13 - Standard Requirements for Instrument Transformers.
  - 2. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
- C. National Electrical Manufacturers Association:
  - 1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
  - 2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
  - 3. NEMA PB 2 - Deadfront Distribution Switchboards.
  - 4. NEMA PB 2.1 - General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less.
- D. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures 01330 - Submittal Procedures.
- B. Shop Drawings: Indicate front and side views of enclosures with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; size and number of bus bars for each phase, neutral, and ground; and switchboard instrument details.

- C. Product Data: Submit electrical characteristics including voltage, frame size and trip ratings, fault current withstand ratings, and time-current curves of equipment and components.
- D. Test Reports: Indicate results of factory production and field tests.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations, configurations, and ratings of switchboards and their components on single line diagrams and plan layouts.
- C. Operation and Maintenance Data: Submit spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years [documented] experience.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Deliver in 48 inch (1.2m) maximum width shipping splits, individually wrapped for protection and mounted on shipping skids.
- C. Accept switchboards on site. Inspect for damage.
- D. Store in clean, dry space. Maintain factory wrapping or provide additional canvas or plastic cover to protect units from dirt, water, construction debris, and traffic.
- E. Handle in accordance with NEMA PB 2.1. Lift only with lugs provided. Handle carefully to avoid damage to switchboard internal components, enclosure, and finish.

#### 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Conform to NEMA PB 2 service conditions during and after installation of switchboards.

#### 1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.9 SEQUENCING

- A. Section 01 10 00 - Summary: Work sequence.
- B. Sequence Work to avoid interferences with building finishes and installation of other products.

1.10 MAINTENANCE MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish two of each key.
- C. Furnish two fuse pullers.

1.11 EXTRA MATERIALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish three of each size and type of fuse installed.

PART 2 PRODUCTS

2.1 DISTRIBUTION SWITCHBOARDS

- A. Manufacturers:
  - 1. GE Electrical.
  - 2. Square D.
  - 3. Eaton.
  - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: NEMA PB 2, enclosed switchboard with electrical ratings and configurations as indicated on Drawings.
- C. Device Mounting:
  - 1. Main Section: Individually mounted and compartmented.
  - 2. Distribution Section: Panel mounted.
  - 3. Auxiliary Section: Individually mounted and compartmented.
- D. Bus:
  - 1. Material: Copper with silver plating, standard size.
  - 2. Connections: Bolted, accessible from front for maintenance.
  - 3. Insulation: Fully insulate load side bus bars. Do not reduce spacing of insulated bus.



- E. Ground Bus: Insulated, extend length of switchboard.
- F. Line and Load Terminations: Accessible from front only of switchboard, suitable for conductor materials and sizes as indicated on Drawings.
- G. Pull Section: Depth and height to match switchboard. Arrange with pull section on left side of switchboard as viewed from front.
- H. Future Provisions: Fully equip spaces for future devices with bussing and bus connections, insulated and braced for short circuit currents. Furnish continuous current rating as indicated on Drawings.
- I. Enclosure: Type 1 - General Purpose.
- J. Align sections at front and rear.
- K. Finish: Manufacturer's standard light gray enamel over external surfaces. Coat internal surfaces with minimum one coat corrosion-resisting paint, or plate with cadmium or zinc.

## 2.2 CIRCUIT BREAKERS

- A. For Circuit breakers rated at 1000 amps and over: Provide low voltage AC power circuit breaker, with fixed mounting, stored energy and solid state trip devices.
  - 1. Provide individual adjustable solid-state elements as an integral part of the solid-state trip devices for complete system selective coordination. Breakers shall have LSGI settings.
  - 2. Position indicator: Provide an indicator visible from the front of the unit to indicate whether the breaker is open or closed.
  - 3. Trip button: Provide a mechanical trip button accessible from the front of the door to trip the breaker.
  - 4. Padlocking: Include provisions for padlocking the breaker in the open position.
  - 5. Trip devices shall have the following features:
    - a. Trip device in each pole.
    - b. Metering, voltage, current memory and LED display.
    - c. Mechanically and electrically trip free.
    - d. Long time element with adjustable pick-up and selective maximum, intermediate, and minimum time delay bands.
    - e. Short time element with adjustable pick-up and selective maximum, intermediate, and minimum time delay bands.
    - f. Ground fault element with adjustable pick-up and selective maximum, intermediate and minimum time delay bands.
    - g. Maintenance setting option to reduce Arc Flash hazards.
- B. For Circuit breakers rated over 200 amps: Provide adjustable trip molded case, solid state adjustable trip type circuit breakers.
  - 1. Ground-Fault Equipment Protection (GFEP) Circuit Breakers (where scheduled): Class B ground-fault protection (30-mA trip).
  - 2. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.

3. Shunt-trip: 120 volt trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
  4. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
  5. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts. "a" contacts mimic circuit breaker contacts and "b" contacts operate in reverse of circuit breaker contacts.
  6. Trip units shall have field adjustable tripping characteristics as follows:
    - a. Ampere Setting (Continuous)
    - b. Long time band.
    - c. Short time trip point.
    - d. Short time delay.
    - e. Instantaneous trip point.
- C. For all circuit breakers 200 amps and smaller: Provide Molded Case Thermal Magnetic Trip type Circuit Breakers.
1. Type SWD for lighting circuits.
  2. Type HACR for all air conditioning equipment circuits.
  3. Class A ground fault interrupter circuit breakers where scheduled.
  4. Do not use tandem circuit breakers.
  5. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240 volt, single-pole configuration for all residential applications.
  6. GFCI Circuit breakers: Single and two-pole configurations with Class A ground-fault protection (6-mA trip).
- D. Circuit breakers serving elevators shall have adjustable long-time setting and shall be provided with a shunt trip coil rated for 120 volt operation. Breaker shall also have a set of Form C contacts. Connect shunt trip coil to operate as indicated on the drawings.
- E. Key Interlock Kit: Externally mounted to prohibit circuit breaker operation. Key shall be removable only when circuit breaker is in off position.

### 2.3 POWER METER

- A. Multifunction Digital Metering Package: Provide Square D model CL3020, type CM2150, Series E2 or prior approved equal.

### 2.4 SOURCE QUALITY CONTROL

- A. Furnish shop inspection and testing in accordance with NEMA PB 2.
- B. Allow witnessing of factory inspections and tests at manufacturer's test facility. Notify Owner and Architect/Engineer at least seven days before inspections and tests are scheduled.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify surface is suitable for switchboard installation.

#### 3.2 INSTALLATION

- A. Install in accordance with NEMA PB 2.1.
- B. Tighten accessible bus connections and mechanical fasteners after placing switchboard.
- C. Install engraved plastic nameplates in accordance with Section 26 05 53.
- D. Install breaker circuit directory.
- E. Ground and bond switchboards in accordance with Section 26 05 26.

#### 3.3 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements, 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.1.

#### 3.4 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust operating mechanisms for free mechanical movement.
- C. Tighten bolted bus connections.
- D. Adjust the breaker trip settings per the values provided per the Overcurrent protective device coordination study provided by the contractor.

#### 3.5 CLEANING

- A. Section 01 70 00 - Execution and Closeout Requirements: Final cleaning.
- B. Touch up scratched or marred surfaces to match original finish.
- C. Clean all debris from panel interiors.

ELECTRICAL SITE PACKAGE  
FACILITIES RELOCATION  
BUILDING SYSTEMS RENOVATION PROJECT

PROJECT # H27-Z400-2  
GMC PROJECT # ACOL180003  
09/08/2020

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 GENERAL

1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes distribution and branch circuit panelboards, electronic grade branch circuit panelboards.
- C. Related Sections:
  - 1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
  - 2. Section 26 05 53 - Identification for Electrical Systems.

1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
- B. National Electrical Manufacturers Association:
  - 1. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
  - 2. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
  - 3. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
  - 4. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
  - 5. NEMA PB 1 - Panelboards.
  - 6. NEMA PB 1.1 - General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.
- C. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- D. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
- E. Underwriters Laboratories Inc.:
  - 1. UL 67 - Safety for Panelboards.
  - 2. UL 1283 - Electromagnetic Interference Filters.

### 1.3 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Include all of the following information:
  - 1. Indicate outline and support point dimensions.
  - 2. Product data
  - 3. Enclosure type
  - 4. Circuit directory
  - 5. Bussing Diagrams
  - 6. Integrated short circuit ampere rating
  - 7. Device Nameplate Data
- C. Product Data: Submit catalog data showing specified features of standard products.

### 1.4 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual locations of panelboards and record actual circuiting arrangements.
- C. Operation and Maintenance Data: Submit spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

### 1.6 MAINTENANCE MATERIALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Requirements for maintenance products.
- B. Furnish two of each panelboard key. Panelboards keyed alike to Owner's current keying system.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:

1. GE Electric
2. Square D
3. Eaton
4. Substitutions: Division 01 Specifications - Product Requirements.

## 2.2 DISTRIBUTION PANELBOARDS

- A. Product Description: NEMA PB 1, circuit breaker type panelboard.
- B. Panelboard Bus: Copper current carrying components, ratings as indicated on Drawings. Furnish copper and neutral ground bus in each panelboard.
- C. See circuit breaker section below for information on types of circuits required.
- D. Enclosure: NEMA PB 1
  1. Indoor Locations - Type 1, unless noted otherwise below.
  2. Outdoor Locations - Type 3R.
- E. Cabinet Front: Door-in-door type, fastened with concealed trim clamps, hinged door with flush lock all keyed alike, metal directory frame, finished in manufacturer's standard gray enamel.
- F. All panelboards shall be hinged "door in door" type with:
  1. Interior hinged door with hand operated latch or latches as required to provide access to circuit breaker operating handles only, not to energized parts.
  2. Outer hinged door shall be securely mounted to the panelboard box with factory bolts, screws, clips or other fasteners requiring a tool for entry, hand operated latches are not acceptable.
  3. Both inner and outer doors shall open left to right.
- G. All panelboards shall have bolt-on style breakers.
- H. Provisions for future breakers shall be fully bussed complete with all necessary mounting hardware.

## 2.3 BRANCH CIRCUIT PANELBOARDS

- A. Product Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.
- B. Panelboard Bus: Copper current carrying components, ratings as indicated on Drawings. Furnish copper ground and neutral bus in each panelboard.
- C. See circuit breaker section below for information on types of circuits required.
- D. Enclosure: NEMA PB 1
  1. Indoor Locations - Type 1, unless noted otherwise below.
  2. Outdoor Locations - Type 3R.

- E. Cabinet Box: 6 inches (153 mm) deep, 20 inches (508 mm) wide.
- F. Cabinet Front: Door-in-door type, fastened with concealed trim clamps, hinged door with flush lock all keyed alike, metal directory frame, finished in manufacturer's standard gray enamel.
- G. All panelboards shall be hinged "door in door" type with:
  - 1. Interior hinged door with hand operated latch or latches as required to provide access to circuit breaker operating handles only, not to energized parts.
  - 2. Outer hinged door shall be securely mounted to the panelboard box with factory bolts, screws, clips or other fasteners requiring a tool for entry, hand operated latches are not acceptable.
  - 3. Both inner and outer doors shall open left to right.
- H. All panelboards shall have bolt-on style breakers.
- I. Provisions for future breakers shall be fully bussed complete with all necessary mounting hardware.

#### 2.4 CIRCUIT BREAKERS

- A. For Circuit breakers rated at 1000 amps and over: Provide low voltage AC power circuit breaker, with fixed mounting, stored energy and solid state trip devices.
  - 1. Provide individual adjustable solid-state elements as an integral part of the solid-state trip devices for complete system selective coordination. Breakers shall have LSGI settings.
  - 2. Position indicator: Provide an indicator visible from the front of the unit to indicate whether the breaker is open or closed.
  - 3. Trip button: Provide a mechanical trip button accessible from the front of the door to trip the breaker.
  - 4. Padlocking: Include provisions for padlocking the breaker in the open position.
  - 5. Trip devices shall have the following features:
    - a. Trip device in each pole.
    - b. Metering, voltage, current memory and LED display.
    - c. Mechanically and electrically trip free.
    - d. Long time element with adjustable pick-up and selective maximum, intermediate, and minimum time delay bands.
    - e. Short time element with adjustable pick-up and selective maximum, intermediate, and minimum time delay bands.
    - f. Ground fault element with adjustable pick-up and selective maximum, intermediate and minimum time delay bands.
    - g. Maintenance setting option to reduce Arc Flash hazards.
- B. For Circuit breakers rated over 200 amps: Provide adjustable trip molded case, solid state adjustable trip type circuit breakers.
  - 1. Ground-Fault Equipment Protection (GFEP) Circuit Breakers (where scheduled): Class B ground-fault protection (30-mA trip).



2. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
  3. Shunt-trip: 120 volt trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
  4. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
  5. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts. "a" contacts mimic circuit breaker contacts and "b" contacts operate in reverse of circuit breaker contacts.
  6. Trip units shall have field adjustable tripping characteristics as follows:
    - a. Ampere Setting (Continuous)
    - b. Long time band.
    - c. Short time trip point.
    - d. Short time delay.
    - e. Instantaneous trip point.
- C. For all circuit breakers 200 amps and smaller: Provide Molded Case Thermal Magnetic Trip type Circuit Breakers.
1. Type SWD for lighting circuits.
  2. Type HACR for all air conditioning equipment circuits.
  3. Class A ground fault interrupter circuit breakers where scheduled.
  4. Do not use tandem circuit breakers.
  5. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240 volt, single-pole configuratio for all residential applications.
  6. GFCI Circuit breakers: Single and two-pole configurations with Class A ground-fault protection (6-mA trip).
- D. Circuit breakers serving elevators shall have adjustable long-time setting and shall be provided with a shunt trip coil rated for 120 volt operation. Breaker shall also have a set of Form C contacts. Connect shunt trip coil to operate as indicated on the drawings.
- E. Key Interlock Kit: Externally mounted to prohibit circuit breaker operation. Key shall be removable only when circuit breaker is in off position.

## 2.5 SHORT CIRCUIT CURRENT RATING

- A. Devices which achieve the level of fault protection indicated by means of "series" or "integrated" rating shall be acceptable unless specifically indicated on the drawings. All panelboards shall be fully rated.
- B. For existing equipment, provide circuit breakers with short circuit current ratings that match ratings indicated on panel, if no markings indicate panelboard rating, then provide ratings that match highest rated circuit breaker in panelboard.

### PART 3 EXECUTION

#### 3.1 EXISTING WORK

- A. Disconnect abandoned panelboards. Remove abandoned equipment unless specifically noted otherwise.

#### 3.2 INSTALLATION

- A. Install panelboards in accordance with NEMA PB 1.1.
- B. Install panelboards plumb.
- C. Install recessed panelboards flush with wall finishes.
- D. Height: 6 feet (1800 mm) to top of panelboard; install panelboards taller than 6 feet (1800 mm) with bottom no more than 4 inches (100 mm) above floor.
- E. Install filler plates for unused spaces in panelboards.
- F. Install spare conduits out of each recessed panelboard to accessible location above ceiling. Minimum spare conduits: 5 empty 1 inch (DN27). Identify each as SPARE.
- G. Ground and bond panelboard enclosure according to Section 26 05 26. Connect equipment ground bars of panels in accordance with NFPA 70.
- H. Provide a circuit breaker locking device for all circuit breakers that serve fire alarm system panels and power supplies. These circuit breakers shall be locked in the "closed" position. Identify these circuit breakers with a red marking.

#### 3.3 FIELD QUALITY CONTROL

- A. Division 01 Specifications - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform circuit breaker inspections and tests listed in NETA ATS, Section 7.6.
- D. Perform controller inspections and tests listed in NETA ATS, Section 7.16.1.

#### 3.4 ADJUSTING

- A. Adjust the breaker trip set points per the values provided per the Overcurrent protective device coordination study provided by the contractor.
- B. Division 01 Specifications - Execution and Closeout Requirements: Requirements for starting and adjusting.

- C. Measure steady state load currents at each panelboard feeder; rearrange circuits in panelboard to balance phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
- D. Touch-up scratched or marred surfaces to match original finish.
- E. Clean all debris from panel interiors.

### 3.5 LABELING

- A. Install engraved plastic nameplates in accordance with Section 26 05 53.
- B. Provide nameplates on all new electrical panelboards. Indicate the following information on the nameplate:
  - 1. Panel Name
  - 2. Panel fed from
  - 3. Voltage, Phase, Wire, Short Circuit Current Rating
  - 4. Date Installed
- C. Use the following color coding for panelboard nameplates:
  - 1. Normal Power: White with Black Letters.
  - 2. Emergency Critical: Orange with Black Letters.
  - 3. Emergency Life Safety: Yellow with Black Letters.
- D. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes to balance phase loads.
- E. Identify load served and location by room names assigned by user, not by room numbers on floor plans. Note spares and spaces as such. Spare circuit breakers shall be left in the open position.
- F. Provide ARC flash identification per NFPA 70E. ARC Flash levels shall be provided per the ARC Flash study provided by the contractor.

### 3.6 CLEARANCE AND WORKSPACE

- A. Maintain workspace and clearances as required by the NEC for voltages encountered. No pipes or ducts shall pass above the outline of the panelboard. It shall be the responsibility of this Contractor to make sure that other trades do not encroach on this space.

END OF SECTION

SECTION 26 28 13

FUSES

PART 1 GENERAL

1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes fuses.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.

1.3 FUSE PERFORMANCE REQUIREMENTS

- A. Motor Branch Circuits: Class RK5.
- B. Lighting Branch Circuits: Class G.

1.4 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures.
- B. Product Data: Submit data sheets showing electrical characteristics, including time-current curves.

1.5 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual sizes, ratings, and locations of fuses.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

1.7 MAINTENANCE MATERIALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Spare parts and maintenance products.

- B. Furnish one fuse pullers for each size fuse installed.

#### 1.8 EXTRA MATERIALS

- A. Furnish three spare fuses of each Class, size, and rating installed.

### PART 2 PRODUCTS

#### 2.1 FUSES

- A. Manufacturers:
  - 1. Cooper Bussmann.
  - 2. Ferraz Shawmut.
  - 3. Littelfuse.
  - 4. Substitutions: Division 01 Specifications - Product Requirements.
- B. Dimensions and Performance: NEMA FU 1, Class as specified or as indicated.
- C. Voltage: Rating suitable for circuit phase-to-phase voltage.

#### 2.2 SPARE FUSE CABINET

- A. Product Description: Wall-mounted sheet metal cabinet with shelves, suitably sized to store spare fuses and fuse pullers specified.
- B. Doors:Hinged, with hasp for Owner's padlock.
- C. Finish: Gray enamel.

### PART 3 EXECUTION

#### 3.1 EXISTING WORK

- A. Remove fuses from abandoned circuits.
- B. Maintain access to existing fuses and other installations remaining active and requiring access. Modify installation or provide access panel.

#### 3.2 INSTALLATION

- A. Install fuse with label oriented so manufacturer, type, and size are easily read.
- B. Install spare fuse cabinet in main electrical room.

END OF SECTION

SECTION 26 28 19

ENCLOSED SWITCHES

PART 1 GENERAL

1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section includes fusible and nonfusible switches.
- C. Related Sections:
  - 1. Section 26 28 13 - Fuses.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
  - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.
  - 2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
- B. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Submittal procedures.
- B. Product Data:
  - 1. Switch ratings (Voltage, Amperage, Poles, SSCR)
  - 2. Enclosure type and dimensions.
  - 3. Control Wiring Diagrams

1.4 CLOSEOUT SUBMITTALS

- A. Division 01 Specifications - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of enclosed switches and ratings of installed fuses.

## 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. GE Electric
  - 2. Square D
  - 3. Eaton
  - 4. Substitutions: Division 01 Specifications - Product Requirements.

### 2.2 FUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type GD with externally operable handle interlocked to prevent opening front cover with switch in ON position, enclosed load interrupter knife switch. Handle lockable in OFF position.
- B. Fuse clips: Designed to accommodate NEMA FU 1, Class fuses as defined for application in Section 26 28 13.
- C. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.
  - 1. Interior Dry Locations: Type 1.
  - 2. Exterior Locations: Type 3R.
- D. Service Entrance: Switches identified for use as service equipment are to be labeled for this application. Furnish solid neutral assembly and equipment ground bar.
- E. Furnish switches with entirely copper current carrying parts.

### 2.3 NONFUSIBLE SWITCH ASSEMBLIES

- A. Product Description: NEMA KS 1, Type GD with externally operable handle interlocked to prevent opening front cover with switch in ON position enclosed load interrupter knife switch. Handle lockable in OFF position.
- B. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.
  - 1. Interior Dry Locations: Type 1.
  - 2. Exterior Locations: Type 3R.

- C. Furnish switches with entirely copper current carrying parts.

#### 2.4 SWITCH RATINGS

- A. Switch Rating: Horsepower rated for AC or DC as indicated on Drawings.
- B. Short Circuit Current Rating: UL listed for 200,000 rms symmetrical amperes when used with or protected by Class R or Class J fuses (15-600 ampere switches employing appropriate fuse rejection schemes) or protected by Class L fuses (800-1200 ampere).

### PART 3 EXECUTION

#### 3.1 EXISTING WORK

- A. Disconnect and remove abandoned enclosed switches.
- B. Maintain access to existing enclosed switches and other installations remaining active and requiring access. Modify installation or provide access panel.

#### 3.2 INSTALLATION

- A. Install enclosed switches plumb. Provide supports in accordance with Section 26 05 29.
- B. Height: 5 feet (1500 mm) to operating handle.
- C. Install fuses for fusible disconnect switches. Refer to Section 26 28 13 for product requirements.

#### 3.3 LABELING

- A. Install engraved plastic nameplates in accordance with Section 26 05 53. Nameplates on all switch enclosures wherein circuits are modified or installed shall indicate the following:
  - 1. Equipment Switch Serves
  - 2. Panel and Circuit Switch is served from.
  - 3. Voltage, Phase, Wire, Short Circuit Current Rating
  - 4. Date Installed.
- B. Use the following color coding for switch nameplates:
  - 1. Normal Power: White with Black Letters.
  - 2. Emergency Critical: Orange with Black Letters.
  - 3. Emergency Life Safety: Yellow with Black Letters.
- C. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.



3.4 FIELD QUALITY CONTROL

- A. Division 01 Specifications - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.5.

END OF SECTION

## SECTION 262826 – 3-WAY MANUAL TRANSFER SWITCHES

### PART 1 – GENERAL

#### 1.1

- A. Contractor shall furnish, deliver, install and test the 3-way manual transfer switches as specified herein and in accordance with the drawings.

#### 1.2 QUALITY ASSURANCE

- A. 3-way manual transfer assembly switch shall be UL listed and labeled under the UL 1008 standard.
- B. 3-way manual transfer switch shall be special seismic certified by OSHPD exclusively on the basis of approved shake table testing, and also certified to IBC 2015. Minimum IBC 2015 design parameters shall be as follows:  $I_p = 1.5$ ,  $SDS = 2.0g$ ,  $z/h = 1.0$
- C. 3-way manual transfer switch manufacturer shall provide a complete factory assembled, wired and tested 3-way manual transfer switch.
- D. 3-way manual transfer switch shall be factory Hi-pot tested for a period of not less than 60 seconds.
- E. 3-way manual transfer switch installation shall meet all applicable NEC standards.
  - 1. 2017 NEC 700.3 (F) compliant when used in conjunction with an ATS and appropriate auxiliary equipment.

#### 1.3 SUBMITTAL REQUIREMENTS

- A. Contractor shall submit manufacturer's drawings and data of 3-way manual transfer switches for Engineer's approval prior to start of fabrication. Drawings and data shall include, as a minimum, dimensioned general arrangement drawings and wiring diagrams, UL listing information including UL file or control number, short circuit rating or withstand rating, component data, mounting provisions, conduit entry locations and installation instructions.

- B. Upon installation of 3-way manual transfer switches Contractor shall submit manufacturer's Operating & Maintenance Manual which shall include as a minimum:
1. Certified as-built General Arrangement drawings and Wiring Diagram.
  2. Materials / Component List including part numbers.
  3. Maintenance and service requirements.
  4. Certificate of Compliance and hi-pot test data.

#### 1.4 PRODUCT WARRANTY

- A. 3-way manual transfer switches shall be covered by manufacturer's warranty for a minimum period of (1) one year after shipment from manufacturer.

### PART 2 - PRODUCTS

#### 2.1 GENERAL

- A. All equipment shall be new.
- B. 3-way manual transfer switch manufacturer must have produced and sold UL 1008 Listed manual transfer switches as a standard product for minimum of (3) years.
- C. 3-way manual transfer switches shall be molded case circuit breaker type; knife switch or fused switches are not acceptable.
- D. Contractor shall be responsible for the equipment until it has been installed and is finally inspected, tested and accepted in accordance with the requirements of this Specification.
- E. 3- way manual transfer switches shall be TripleSwitch as manufactured by ESL Power Systems, Inc. or equal as approved by the Engineer.

#### 2.2 3-WAY MANUAL TRANSFER SWITCHES

- A. 3-way manual transfer switch shall consist of (2) mechanically-interlocked molded case circuit breakers, and (1) independent load bank breaker with a shunt trip (shunt trip voltage to be per the drawings), male cam-style inlet connectors, female cam-style outlet connectors, power distribution blocks and grounding terminals, all housed within a padlockable enclosure.

- B. 3-way manual transfer switch enclosure shall be Type 3R, constructed of continuous seam-welded, powder coated galvalume steel. The main access shall be through an interlocked, hinged door that extends the full height of the enclosure. Access for both portable generator cables with female cam-style plugs and for load bank cables with male cam-style plugs shall be via a) drawn flange cable entry openings in the bottom of enclosure for wall mount units, or b) hinged lower door for pad mount units. A hinged flap door shall be provided to cover the cable openings when cables are not connected; the hinged flap door shall allow cable entry only after the main access door has been opened. Enclosure shall be powder coated after fabrication; color shall be wrinkle gray RAL 7035.
- C. Cam-style male connectors (inlets) and cam-style female connectors (outlets) shall be UL Listed single-pole separable type and rated 400 amps at 600VAC. All cam-style connectors shall be color coded. Cam-style connectors shall be provided for each phase and for ground, and shall also be provided for neutral. Each of the phase cam-style connectors and the neutral cam-style connectors within the enclosure shall be factory-wired to a molded case circuit breaker. The ground cam-style male connectors shall be bonded to the enclosure, and a ground lug shall be provided for connection of the facility ground conductor. None of the cam-style connectors shall be accessible unless all (3) molded case circuit breakers are in the “OFF” position and the main access door is open.
- D. A power distribution block shall be provided for load-side field wiring. The power distribution block shall be factory wired to the molded case circuit breakers.
- E. Molded case circuit breakers shall be UL Listed 3-pole and the short circuit interrupt rating shall be a minimum of 35kAIC at 480VAC (wall mount units) or 50kAIC at 480VAC (pad mount units). Trip rating of the molded case circuit breakers shall be as shown on the drawings. One molded case circuit breaker shall control the connection between the permanent generator and the automatic transfer switch. A second circuit breaker shall control the connection between the permanent generator and the load bank female cam-style connectors. A third circuit breaker shall control the connection between the portable generator (via male cam-style connectors) and the automatic transfer switch. All (3) molded case circuit breakers shall include UL Listed door-mounted operating mechanisms, preventing the opening of the main access door unless all (3) breakers are in the “OFF” position. All (3) molded case circuit breakers shall be mounted behind a deadfront panel. The load-side of the molded case circuit breakers shall not be energizable unless the main access door is closed and one of the molded case circuit breakers is in the “ON” position. The (2) molded case circuit breakers

controlling the connections between the permanent generator and the automatic transfer switch, and the connection between the portable generator and automatic transfer switch shall be safety interlocked by mechanical means to ensure that only one of these breakers can be closed at any given time.

- F. An auxiliary contact shall be provided in the circuit breaker controlling the connection from the Permanent Generator to the ATS and shall be factory wired to terminal blocks within the enclosure. The auxiliary contact is provided in compliance with NEC 2017 700.3 (F)(5) which requires a means to activate an annunciator circuit.

### PART 3 - EXECUTION

#### 3.1 PRODUCT INSTALLATION

- A. Prior to installation of 3-way manual transfer switches, Contractor shall examine the areas and conditions under which the 3-way manual transfer switch is to be installed and notify the Engineer in writing if unsatisfactory conditions exist.
- B. 3-way manual transfer switch shall be installed as shown on the drawings and per the manufacturer's written instructions. In addition, the installation shall meet the requirements of local codes, the National Electrical Code and National Electrical Contractors Association's "Standard of Installation".
- C. Conduit entry into the 3-way manual transfer switch shall be by Contractor; Contractor shall furnish and install listed watertight conduit hubs, as manufactured by MYERS or T&B, for each conduit entry on the 3-way manual transfer switch. The incoming hub size shall match the conduit size for feeders and ground as shown on the drawings. The outgoing hub size shall match the conduit size for loads and ground as shown on the drawings. Hubs shall be properly installed and tightened to maintain Type 3R integrity of the 3-way manual transfer switch enclosure.
- D. Contractor shall terminate feeder conductors, load conductors and ground per the manufacturer's instructions. All field wiring terminations shall be torqued as required per the instructions on the 3-way manual transfer switch's power distribution blocks, circuit breakers & ground lugs.

#### 3.2 FIELD TESTING

- A. Prior to energizing 3-way manual transfer switch, the Contractor shall perform the following checks and tests as a minimum:

1. Verify mounting and connections are complete and secure.
2. Verify internal components and wiring are secure.
3. Perform continuity check of all circuits.
4. Perform 1,000 VDC megger test on feeder and load cables. Prior to testing, all auxiliary circuits must be turned OFF and all fuses, microswitches and shunt trip circuits must be disconnected. It is required to take out the rating plug of any electronic trip circuit breakers while performing a megger (insulation) test.
5. Verify deadfront is secure.
6. With the 3-way manual transfer switch deadfront in place and the main access door closed and properly latched, actuate all (3) Operator Mechanisms; verify:
  - A). With the breaker controlling the connection between the permanent generator and the automatic transfer switch (ATS) in the "ON" position, the breaker controlling the connection between permanent generator and the load bank can be turned to the "ON" and "OFF" position and the breaker controlling the connection between the portable generator and the automatic transfer switch cannot be turned "ON"
  - B) With the breaker controlling the connection between the permanent generator and the automatic transfer switch (ATS) in the "OFF" position, the other (2) breakers controlling the connection between the permanent generator and load bank can be turned "ON" or "OFF", and the breaker controlling the connection between the portable generator and the automatic transfer switch can be turned "ON" and "OFF"
  - C) With the breaker controlling the connection between the portable generator and the automatic transfer switch (ATS) in the "ON" position, the breaker controlling the connection between the permanent generator and the automatic transfer switch (ATS) cannot be turned "ON" and the breaker controlling the connection between the permanent generator and load bank can be turned "ON" and "OFF".
7. Confirm operation of the 3-way manual transfer switch ground receptacle by attaching a plug to the 3-way manual transfer switch ground receptacle and then verify that the plug is grounded to the facility ground.
8. Once normal power has been applied, confirm operation of 3-way manual transfer switch by following directions on main access door.

END OF SECTION 262826

## SECTION 264300 – SURGE PROTECTIVE DEVICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Division 27 and 28 requirements shall be a sub-contract to Division 26. Division 26 shall be responsible for all requirements listed on electrical drawings, and Division 26, 27, and 28 specifications.
- B. Section Includes: Surge Protection Devices Type 1 and Type 2 Devices

#### 1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
  - 1. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
  - 2. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
  - 3. IEEE C62.45 - Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits.
- B. National Fire Protection Association:
  - 1. NFPA 70 - National Electrical Code.
  - 2. NFPA 780 - Standard for the Installation of Lightning Protection Systems.
- C. Underwriters Laboratories Inc.:
  - 1. UL 1283 - Electromagnetic Interference Filters.
  - 2. UL 1449 Third Edition - Surge Protective Devices.

#### 1.3 SUBMITTALS

- A. Division 01 Specifications - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit the following
  - 1. Unit Dimensions and Weights
  - 2. Wiring configuration.
  - 3. Warranty Statement
  - 4. Current Ratings
  - 5. Clamping Voltages
  - 6. Response Time
- C. Test Reports:
  - 1. Indicate Let-Through voltage test data.
  - 2. Submit spectrum analysis of each unit.
  - 3. Submit test reports from nationally recognized independent testing laboratory verifying suppressors can survive published surge current rating.

- D. Manufacturer's Installation Instructions: Submit installation instructions and connection requirements.
- E. Manufacturer's Certificate: Certify transient voltage surge suppression device complies with UL 1449 Third Edition Surge Voltage Ratings.

#### 1.4 QUALITY ASSURANCE

- A. Reference Standard: Comply with the latest edition of the applicable provisions and recommendations of the following, except as otherwise stated in this document:
  - 1. UL 1449 3rd Edition 2009 Revision
  - 2. UL 1283.
  - 3. ANSI/IEEE C62.41, Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.
  - 4. ANSI/IEEE C62.45, Guide for Surge Testing for equipment connected to Low-Voltage AC Power Circuits.
  - 5. IEEE 1100 Emerald Book.
  - 6. National Fire Protective Association (NFPA 70: National Electrical Code).

#### 1.5 WARRANTY

- A. Provide a 5 year product warranty.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following manufacturers:
  - 1. Emerson / APT
  - 2. Current Technologies
  - 3. Thor
  - 4. GE Electric
  - 5. Square D
  - 6. Eaton
  - 7. Substitutions: Division 01 Specifications - Product Requirements

#### 2.2 ELECTRICAL REQUIREMENTS

- A. Declared Maximum Continuous Operating Voltage (MCOV) shall be greater than 115 percent of the nominal system operating voltage and in compliance with test and evaluation procedures outlined in the nominal discharge surge current test of UL1449 3<sup>rd</sup> Edition, section 37.7. MCOV values claimed based on the component's value or on the 30-minute 115% operational voltage test, section 38 in UL1449 will not be accepted.
- B. Unit shall have not more than 10% deterioration or degradation of the UL1449 3<sup>rd</sup> Edition Voltage Protective Rating (VPR) due to repeated surges. Unit shall have a monitoring option available to be able to test and determine the percentage of protective available at all times.



- C. Protection Modes: SVR(6kV, 500A) and UL1449 3<sup>rd</sup> Edition VPR(6kV, 3kA) for grounded WYE/delta and High Leg Delta circuits with voltages of (480Y/277), (208Y/120), (600Y/347) 3-Phase/4 wire and (120/240) Split phase/3 wire circuits shall be as follows and comply with test procedures outlined in UL1449 3<sup>rd</sup> Edition section 37.6

System Voltage	Mode	MCOV	B3 Ringwave	C3 Comb. Wave	UL 1449 Second Edition SVR Rating	UL 1449 Third Edition VPR Rating
120/240	L-N	150	325/375	650/775	400/400	700/700
120/208	L-G	150	400/450	650/825	500/500	700/700
	N-G	150	350/350	500/500	500/500	900/900
	L-L	300	400/500	950/1250	700/700	900/900
277/480	L-N	320	550/600	1125/1225	900/900	1000/1000
	L-G	320	850/875	1075/1225	1000/1000	1200/1200
	N-G	320	700/700	900/900	800/800	1200/1200
	L-L	550	650/750	1950/2200	1500/1500	1800/1800

- D. Electrical Noise Filter- each unit shall include a high performance EMI/RFI noise rejection filter. Noise attenuation for electric noise shall be as follows using the MIL-STD-220B insertion loss test method.
1. 100 kHz at 44 db or better.
  2. All other frequencies should be 32 db or better.
- E. Each fuse shall be individually sealed in a manner that eliminates the potential for cross arcing.
- F. Each unit shall provide the following features:
1. Phase Indicator lights, Form C dry contacts, surge counter and audible alarm.
  2. Field testable while installed.
  3. Measuring capability to indicate the percent protective available in SPD.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Each unit shall be installed per Manufacturer's recommended installation and wiring practices.
- B. The UL 1449 Voltage Protective Rating (VPR) shall be permanently affixed to the SPD unit.
- C. The UL 1449 Nominal Discharge Surge Current Rating shall be a minimum of 20kA.
- D. **Surge Current Rating of device shall be as noted on drawings.**

- E. The SCCR rating of the SPD shall be 200kAIC without requiring an upstream protective device for safe operation.
  
- F. Locate SPDs and associated circuit breaker in panelboard or switchboard so as to minimize conductor lengths and bends.
  - 1. Conductors between SPD and circuit breaker shall be no more than 24" in length.
  - 2. There shall be no sharp bends or kinks in conductors.
  - 3. Conductors shall be continuous from device to breaker.
  - 4. Do not bundle or tie-wrap conductors together.
  - 5. If conductor's must exceed 24" in length or contain multiple bends due to location constraints, contractor shall provide manufacturer's specialty cable for excessive lengths at no additional cost.
  
- G. The SPD manufacturer's technician shall perform a system checkout and start-up in the field to assure proper installation, operation and to initiate the warranty of the system. The technician will be required to do the following:
  - 1. Verify voltage clamping levels using the DTS-2 test equipment.
  - 2. Verify N-G connection when applicable.
  - 3. Record information to product signature card for each product installed.

END OF SECTION