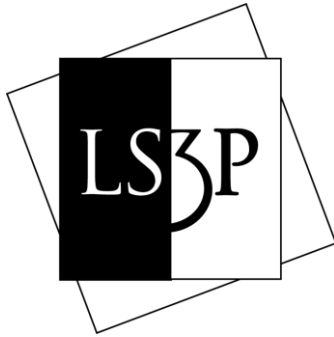


PROJECT MANUAL

**UNIVERSITY OF SOUTH CAROLINA
BARUCH MARINE FIELD LABORATORY
GEORGETOWN, SOUTH CAROLINA**

**MARINE LABORATORY ROOF
REPLACEMENT**

PROJECT NUMBER: H27-I934



ARCHITECT

LS3P ASSOCIATES LTD.
701-A LADY STREET
COLUMBIA, SOUTH CAROLINA 29201
PHONE: (803) 765-2418; FAX: (803) 765-2419

LS3P PROJECT No.: 2202-116350

BID DOCUMENTS

September 11, 2012
© 2012

TABLE OF CONTENTS

Table of Contents	2
Invitation for Bids (SE-310)	1
Instruction to Bidders *	1
(AIA Document A701 – 1997 Edition)	
00201-Standard Supplemental Instructions to Bidders.....	10
(Supplement to AIA Document A701-1997 Edition)	
Bid Bond (AIA Document A310-2010)	2
Lump Sum Bid Form (SE-330)	7
Standard Form of Agreement Between Owner and Contractor *	1
(AIA Document A101 – 2007 Edition)	
00501-Standard Modifications to Agreement Between Owner and Contractor	3
(Supplement to AIA Document A101-2007 Edition)	
General Conditions of the Contract for Construction *	1
(AIA Document A201 – 2007 Edition)	
00811-Standard Supplementary Conditions	25
(Supplement to AIA Document A201-2007 Edition)	
University of South Carolina Supplemental General Conditions	4
for Construction Projects.	
University of South Carolina One Year Guarantee.....	1
Performance Bond (SE-355)	2
Labor and Material Payment Bond (SE-357)	2

TECHNICAL SPECIFICATIONS

Division/ Section	Section Title
----------------------	---------------

DIVISION 01 - GENERAL REQUIREMENTS

011000	Summary
012100	Allowances
012200	Unit Prices
012300	Alternates

012500	Substitution Procedures
012600	Contract Modification Procedures
012900	Payment Procedures
013100	Project Management and Coordination
013200	Construction Progress Documentation
013300	Submittal Procedures
014000	Quality Requirements
016000	Product Requirements
017300	Execution
017329	Cutting and Patching
017419	Construction Waste Management and Disposal
017700	Closeout Procedures
017823	Operation and Maintenance Data
017839	Project Record Documents

DIVISION 02 – SITE CONSTRUCTION

024119	Selective Structure Demolition
--------	--------------------------------

DIVISIONS 03 THROUGH 05

NOT USED

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

061005	Rough Carpentry for Roofing
--------	-----------------------------

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

072205	Thermal Insulation for Roofing
073105	Architectural Laminated Shingles
075305	Thermoplastic Alloy (TP) Roofing System Fully Adhered
076005	Sheet Metal for Roofing
079205	Sealants for Roofing and Sheet Metal

DIVISIONS 08 THROUGH 22

NOT USED

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING – Refer to Drawings

DIVISIONS 24 THROUGH 25

NOT USED

DIVISION 26 – ELECTRICAL – Refer to Drawings

DIVISIONS 27 THROUGH 33

NOT USED

END OF DOCUMENT 000100

SE-310 REQUEST FOR ADVERTISEMENT

2011 Edition
Rev. 7/20/2011

PROJECT NAME: USC Baruch Marine Laboratory Roof Replacement

PROJECT NUMBER: H27-1934

PROJECT LOCATION: Georgetown, SC

Contractor may be subject to performance appraisal at close of project

BID SECURITY REQUIRED? Yes ☒ No ☐

PERFORMANCE & PAYMENT BONDS REQUIRED? Yes ☒ No ☐

CONSTRUCTION COST RANGE: \$250,000-\$400,000

DESCRIPTION OF PROJECT: Remove exist'g low-slope membrane roofing at rooftop equipment well & replace w/ new roof assembly (including associated shingled roof at low-slope roof replacement), relocate exist'g electrical panels/conduit on surface of roof, & replace ductwork at exist'g penetration through shingled roof; Alternate No.1 includes removal/replacement of existing asphalt shingles, underlayment & accessories w/ new roofing assembly/accessories as indicated. Small & minority business participation is encouraged.

A/E NAME: LS3P ASSOCIATES LTD.

A/E CONTACT: David Anderson, AIA

A/E ADDRESS: Street/PO Box:701-A Lady Street

City: Columbia

State: SC ZIP: 29201-

EMAIL: davidanderson@ls3p.com

TELEPHONE: (803) 765-2418

FAX: _____

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

BIDDING DOCUMENTS/PLANS MAY BE OBTAINED FROM: http://purchasing.sc.edu - Bidders are responsible for obtaining all updates to bidding documents from the USC Purchasing website.

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

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

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

http://purchasing.sc.edu (see facilities/Construction Solicitation & Awards); Bidders are responsible for obtaining all updates to bidding documents from the USC Purchasing website.

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

DATE: 10/2/2012

TIME: 1:00 pm

PLACE: USC Baruch Marine Field Laboratory, 2306 Crabhaul Road, Georgetown, SC 29442

AGENCY: University of South Carolina

NAME OF AGENCY PROCUREMENT OFFICER: Kay Keisler, Procurement Specialist

ADDRESS: Street/PO Box:743 Greene Street

City: Columbia

State: SC ZIP: 29208-

EMAIL: kkeisler@fmc.sc.edu

TELEPHONE: 803-777-5812

FAX: 803-777-8739

BID CLOSING DATE: 10/16/2012 **TIME:** 1:00 pm **LOCATION:** USC Baruch Marine Field Laboratory, 2306 Crabhaul Road, Georgetown, SC 29442

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Mr. Paul Kenny

University of South Carolina

Baruch Marine Field Lab

2306 Crabhaul Road, Georgetown, SC 29442

MAIL SERVICE:

Attn: Mr. Paul Kenny

University of South Carolina

Baruch Marine Field Lab

2306 Crabhaul Road, Georgetown, SC 29442

SE-310
REQUEST FOR ADVERTISEMENT

2011 Edition
Rev. 7/20/2011

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

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

DATE: _____

A701 – 1997 Edition

INSTRUCTIONS TO BIDDERS

(Replacement Page)

*Original AIA Document on file at the office
of Facilities Business and Finance
743 Greene Street, Columbia, SC*

OSE FORM 00201

STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

OWNER: University of South Carolina

PROJECT NUMBER: H27-1934

PROJECT NAME: Marine Laboratory Roof Replacement

PROJECT LOCATION: The Hobcaw Barony, Georgetown, SC 29440

PROCUREMENT OFFICER: Kay Keisler

1. STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

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

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

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

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

2. MODIFICATIONS TO A701-1997

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

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

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

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

2.4. *In Section 2.1.1:*

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

Insert the following at the end of this section:

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

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

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

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

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

2.2 CERTIFICATION OF INDEPENDENT PRICE DETERMINATION

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

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

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

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

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

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

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

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

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

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

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

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

2.3 DRUG FREE WORKPLACE

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

2.4 CERTIFICATION REGARDING DEBARMENT AND OTHER RESPONSIBILITY MATTERS

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

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

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

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

OSE FORM 00201

STANDARD SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision.

(ii) Bidder has not, within a three-year period preceding this bid, had one or more contracts terminated for default by any public (Federal, state, or local) entity.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

(b) Bidder shall provide immediate written notice to the Procurement Officer if, at any time prior to contract award, Bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) If Bidder is unable to certify the representations stated in paragraphs (a)(1), Bid must submit a written explanation regarding its inability to make the certification. The certification will be considered in connection with a review of the Bidder's responsibility. Failure of the Bidder to furnish additional information as requested by the Procurement Officer may render the Bidder nonresponsible.

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

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

2.5 ETHICS CERTIFICATE

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

2.6 RESTRICTIONS APPLICABLE TO BIDDERS & GIFTS

Violation of these restrictions may result in disqualification of your bid, suspension or debarment, and may constitute a violation of the state Ethics Act. (a) After issuance of the solicitation, ***bidder agrees not to discuss this procurement activity in any way with the Owner or its employees, agents or officials.*** All communications must be solely with the Procurement Officer. This restriction may be lifted by express written permission from the Procurement Officer. This restriction expires once a contract has been formed. (b) Unless otherwise approved in writing by the Procurement

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

Officer, *bidder agrees not to give anything to the Owner, any affiliated organizations, or the employees, agents or officials of either, prior to award.* (c) Bidder acknowledges that the policy of the State is that a governmental body should not accept or solicit a gift, directly or indirectly, from a donor if the governmental body has reason to believe the donor has or is seeking to obtain contractual or other business or financial relationships with the governmental body. Regulation 19-445.2165(C) broadly defines the term donor.

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

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

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

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

2.10. *Insert the following Section 3.1.5*

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

2.11. *In Section 3.2.2:*

Delete the words "and Sub-bidders"

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

2.12. *In Section 3.2.3:*

In the first Sentence, insert the word "written" before the word "Addendum."

Insert the following at the end of the section:

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

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

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

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

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

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

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

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

2.16. Insert the following Sections 3.4.5 and 3.4.6:

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

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

2.17. In Section 4.1.1, delete the word “forms” and substitute the words “SE-330 Bid Form.”**2.18. Delete Section 4.1.2 and substitute the following:**

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

2.19. Delete Section 4.1.3 and substitute the following:

4.1.3 Sums shall be expressed in figures.

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

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

2.21. Delete Section 4.1.5 and substitute the following:

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

2.22. Delete Section 4.1.6 and substitute the following:

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

2.23. Delete Section 4.1.7 and substitute the following:

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

2.24. Delete Section 4.2.1 and substitute the following:

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

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

2.25. Delete Section 4.2.2 and substitute the following:

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

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

2.26. Delete Section 4.2.3 and substitute the following:

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

2.27. Insert the following Section 4.2.4:

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

2.28. Delete Section 4.3.1 and substitute the following:

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

2.29. Insert the following Section 4.3.6 and substitute the following:

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

2.30. Delete Section 4.4.2 and substitute the following:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6.1 CONTRACTOR'S RESPONSIBILITY

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

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

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

2.37. *Insert the following Section 6.4*

6.4 CLARIFICATION

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

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

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

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

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

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

2.41. Delete Section 7.2.1 and substitute the following:

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

2.42. Delete the language of Section 7.2.2 and insert the word "Reserved."**2.43. Delete the language of Article 8 and insert the following:**

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

2.44. Insert the following Article 9:**ARTICLE 9 MISCELLANEOUS****9.1 NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING
IMPORTANT TAX NOTICE - NONRESIDENTS ONLY**

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

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

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

PLEASE SEE THE "NONRESIDENT TAXPAYER REGISTRATION AFFIDAVIT INCOME TAX WITHHOLDING" FORM (FORM NUMBER I-312) LOCATED AT:
<http://www.sctax.org/Forms+and+Instructions/withholding/default.htm>.

9.2 CONTRACTOR LICENSING

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

9.3 SUBMITTING CONFIDENTIAL INFORMATION

For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that Bidder contends contains information that is exempt from public disclosure because it is either (a) a trade secret as defined in Section 30-4-40(a)(1), or (b) privileged & confidential, as that phrase is used in Section 11-35-410. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the words "TRADE SECRET" every page, or portion thereof, that Bidder contends contains a trade secret as that term is defined by Section 39-8-20 of the Trade Secrets Act. For every document Bidder submits in response to or with regard to this solicitation or request, Bidder must separately mark with the word "PROTECTED" every page, or portion thereof, that Bidder contends is protected by Section 11-35-1810. All markings must be conspicuous; use color, bold, underlining, or some other method in order to conspicuously distinguish the mark from the other text. Do not mark your entire bid as confidential, trade secret, or protected! If your bid, or any part thereof, is improperly marked as confidential or trade

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

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

9.4 POSTING OF INTENT TO AWARD

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

Room or Area of Posting: Reception Area

Building Where Posted: Facilities Center

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

WEB site address (if applicable): <http://purchasing.sc.edu> (see Facilities/Construction Solicitation & Awards

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

9.5 PROTEST OF SOLICITATION OR AWARD

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

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

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

(b) by facsimile at 803-737-0639, or

(c) by post or delivery to 1201 Main Street, Suite 600, Columbia, SC 29201.

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

9.6 SOLICITATION INFORMATION FROM SOURCES OTHER THAN OFFICIAL SOURCE

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

9.7 BUILDER'S RISK INSURANCE

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

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

9.8 TAX CREDIT FOR SUBCONTRACTING WITH MINORITY FIRMS

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

§ 9.9 OTHER SPECIAL CONDITIONS OF THE WORK

END OF DOCUMENT

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

University of South Carolina
743 Greene Street
Columbia, SC 29208

BOND AMOUNT: \$**PROJECT:**

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

Marine Laboratory Roof Replacement
Project No: H27-I934

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

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

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

ADDITIONS AND DELETIONS:

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

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

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

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

| Signed and sealed this day of , 2012

(Contractor as Principal) (Seal)

(Witness)

(Title)

(Surety) (Seal)

(Witness)

(Title)

Init.

/

SE-330 – LUMP SUM BID BID FORM

2011 Edition
Rev. 9/21/2011

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

BID SUBMITTED BY: _____

(Bidder's Name)

BID SUBMITTED TO: University of South Carolina

(Owner's Name)

FOR PROJECT: PROJECT NAME USC Marine Laboratory Roof Replacement

PROJECT NUMBER H27-I934

OFFER

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

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

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

(Bidder check one)

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

ADDENDUM No: _____

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

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

§ 6.1 BASE BID WORK *(as indicated in the Bidding Documents and generally described as follows):* Includes, but is not limited to, the removal of the existing low-slope membrane roofing at the mechanical equipment well and replacement with a new roof assembly (including associated shingled roof area to the low-slope roof replacement), relocation of existing electrical panels/conduit runs on the surface of the roof, and ductwork replacement at the existing penetration through the shingled roof facing the mechanical well.

_____, which sum is hereafter called the Base Bid.

(Bidder - insert Base Bid Amount on line above)

SE-330 – LUMP SUM BID BID FORM

2011 Edition
Rev. 9/21/2011

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

ALTERNATE # 1 (*Brief Description*): In addition to the areas indicated in the Base Bid, complete removal of all existing asphalt shingles, underlayment, components and accessories down to the existing deck on Roof Area B and installation of new Asphalt architectural laminated shingles, underlayment system, all associated flashings, and ridge vents in accordance with section 07 31 05, Architectural Laminated Shingles.

☐ ADD TO or ☐ DEDUCT FROM BASE BID: _____

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

ALTERNATE # 2 (*Brief Description*): _____

☐ ADD TO or ☐ DEDUCT FROM BASE BID: _____

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

ALTERNATE # 3 (*Brief Description*): _____

☐ ADD TO or ☐ DEDUCT FROM BASE BID: _____

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

SE-330 – LUMP SUM BID BID FORM

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

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

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

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

INSTRUCTIONS FOR SUBCONTRACTOR LISTING

- 1.** Section 7 of the Bid Form sets forth a list of subcontractor specialties for which bidder is required to identify by name the subcontractor(s) Bidder will use to perform the work of each listed specialty. Bidder must identify only the subcontractor(s) who will perform the work and no others.
- 2.** For purposes of subcontractor listing, a Subcontractor is an entity who will perform work or render service to the prime contractor to or about the construction site. Material suppliers, manufacturers, and fabricators that will not perform physical work at the site of the project but will only supply materials or equipment to the bidder or proposed subcontractor(s) are not subcontractors and Bidder should not insert their names in the spaces provided on the bid form. Likewise, Bidder should not insert the names of sub-subcontractors in the spaces provided on the bid form but only the names of those entities with which bidder will contract directly.
- 3.** Bidder must only insert the names of subcontractors who are qualified to perform the work of the listed specialties as specified in the Bidding Documents and South Carolina Licensing Laws.
- 4.** If under the terms of the Bidding Documents, Bidder is qualified to perform the work of a specialty listed and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert its own name in the space provided for that specialty.
- 5.** If Bidder intends to use multiple subcontractors to perform the work of a single specialty listing, Bidder must insert the name of each subcontractor Bidder will use, preferably separating the name of each by the word **"and"**. If Bidder intends to use both his own employees to perform a part of the work of a single specialty listing and to use one or more subcontractors to perform the remaining work for that specialty listing, bidder must insert his own name and the name of each subcontractor, preferably separating the name of each with the word **"and"**.
- 6.** Bidder may not list subcontractors in the alternative nor in a form that may be reasonably construed at the time of bid opening as a listing in the alternative. A listing that requires subsequent explanation to determine whether or not it is a listing in the alternative is non-responsive. If bidder intends to use multiple entities to perform the work for a single specialty listing, bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word **"and"** between the name of each entity listed for that specialty. Owner will reject as non-responsive a listing that contains the names of multiple subcontractors separated by a blank space, the word **"or"**, a virgule (that is a /), or any separator that the Owner may reasonably interpret as a listing in the alternative.
- 7.** If Bidder is awarded the contract, bidder must, except with the approval of the owner for good cause shown, use the listed entities to perform the work for which they are listed.
- 8.** If bidder is awarded the contract, bidder will not be allowed to substitute another entity as subcontractor in place of a subcontractor listed in Section 7 of the Bid except for one or more of the reasons allowed by the SC Code of Laws.
- 9.** Bidder's failure to insert a name for each listed specialty subcontractor will render the Bid non-responsive.

SE-330 – LUMP SUM BID BID FORM

§ 8. LIST OF MANUFACTURERS, MATERIAL SUPPLIERS, AND SUBCONTRACTORS OTHER THAN SUBCONTRACTORS LISTED IN SECTION 7 ABOVE (FOR INFORMATION ONLY): Pursuant to instructions in the Invitation for Bids, if any, Bidder will provide to Owner upon the Owner's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code Ann § 11-35-3020(b)(i).

§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES

a. **CONTRACT TIME:** Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Owner. Bidder agrees to substantially complete the Work within ninety calendar days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

b. **LIQUIDATED DAMAGES:** Bidder further agrees that from the compensation to be paid, the Owner shall retain as Liquidated Damages the sum of \$500.00 for each calendar day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This sum is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

§ 10. AGREEMENTS

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

§ 11. ELECTRONIC BID BOND

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

Electronic Bid Bond Number: _____

Signature and Title: _____

**SE-330 – LUMP SUM BID
BID FORM**

2011 Edition
Rev. 9/21/2011

BIDDER'S TAXPAYER IDENTIFICATION

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER: _____

OR

SOCIAL SECURITY NUMBER: _____

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATIONS

Classification(s) & Limits: _____

Subclassification(s) & Limits: _____

SC Contractor's License Number(s): _____

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

SIGNATURE

BIDDER'S LEGAL NAME: _____

ADDRESS: _____

BY: _____
(Signature)

DATE: _____

TITLE: _____

TELEPHONE: _____

EMAIL: _____

SE-330 Lump Sum Bid Form Unit Prices Attachment

Project Name: Marine Laboratory Roof Replacement
Project Number: H27-I934

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

No.	Item	Base Bid Qty	Unit of Measure	ADD Cost per Unit		DEDUCT Cost per Unit
1	Plywood	2,080	Square-foot			
2	Lumber (2x4)	50	Linear Foot			
3	Lumber (2x6)	50	Linear Foot			

Note: Please provide an "Add" and "Deduct" price per unit.

A101 – 2007 Edition

**STANDARD FORM OF AGREEMENT BETWEEN
OWNER AND CONTRACTOR**

(Replacement Page)

*Original AIA Document on file at the office
of Facilities Business and Finance
743 Greene Street, Columbia, SC*

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

OWNER: University of South Carolina

PROJECT NUMBER: H27-I934

PROJECT NAME: Marine Laboratory Roof Replacement

1. STANDARD MODIFICATIONS TO AIA A101-2007

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

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

2. MODIFICATIONS TO A101

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Name: Thomas Opal

Title: Sr. Project Manager

Address: 743 Greene Street, Columbia, SC 29208

Telephone: 803.777.7076 **FAX:** 803.777.8739

Email: tnopal@fmc.sc.edu

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

Name: Dwight Cathcart

Title: Project Manager

Address: 743 Greene Street, Columbia, SC 29208

Telephone: 803.777.9824 **FAX:** 803.777.8739

Email: dcathcar@fmc.sc.edu

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

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

Name: _____

Title: _____

Address: _____

Telephone: _____ **FAX:** _____

Email: _____

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

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

Name: _____

Title: _____

Address: _____

Telephone: _____ **FAX:** _____

Email: _____

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

8.6.1 The Architect's representative:

Name: David Anderson

Title: Associate Principal

Address: LS3P ASSOCIATES LTD., 701-A Lady Street, Columbia, SC 29201

Telephone: 803.765.2418 **FAX:** _____

Email: davidanderson@ls3p.com

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

Invitation for Construction Bids (SE-310)

Instructions to Bidders (AIA Document A701-1997)

Standard Supplemental Instructions to Bidders (OSE Form 00201)

Contractor's Bid (Completed SE-330)

Notice of Intent to Award (Completed SE-370)

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

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

END OF DOCUMENT

A201 – 2007 Edition

**GENERAL CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION**

(Replacement Page)

*Original AIA Document on file at the office
of Facilities Business and Finance
743 Greene Street, Columbia, SC*

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

OWNER: University of South Carolina**PROJECT NUMBER:** H27-I934**PROJECT NAME:** Marine Laboratory Roof Replacement**1 GENERAL CONDITIONS**

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

2 STANDARD SUPPLEMENTARY CONDITIONS

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

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

3 MODIFICATIONS TO A201-2007

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

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

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

3.3 *Add the following Section 1.1.9:*

1.1.9 NOTICE TO PROCEED

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

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

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

3.5 *Delete Section 1.5.1 and substitute the following:*

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

3.6 *Delete Section 2.1.1 and substitute the following:*

2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, except as provided in Section 7.1.2. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's Representative. [Reference § 8.2 of the Agreement.]

3.7 *Delete Section 2.1.2 and substitute the following:*

2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to post Notice of Project Commencement pursuant to Title 29, Chapter 5, Section 23 of the South Carolina Code of Laws, as amended..

3.8 *Delete Section 2.2.3 and substitute the following:*

2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. Subject to the Contractor's obligations, including those in Section 3.2, the Contractor shall be entitled to rely on the accuracy of information furnished by the Owner pursuant to this Section but shall exercise proper precautions relating to the safe performance of the Work.

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

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

3.10 *Delete Section 2.2.5 and substitute the following:*

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

3.11 *Add the following Sections 2.2.6 and 2.2.7:*

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

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

3.12 *Delete Section 2.4 and substitute the following:*

2.4 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect, including but not limited to providing necessary resources, with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Directive shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

3.14 *In the third sentence of Section 3.2.4, insert the word “latent” before the word “errors.”***3.15** *In the last sentence of Section 3.3.1, insert the words “by the Owner in writing” after the word “instructed.”***3.16** *Delete the third sentence of Section 3.5 and substitute the following sentences:*

Work, materials, or equipment not conforming to these requirements shall be considered defective. Unless caused by the Contractor or a subcontractor at any tier, the Contractor’s warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.

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

The Contractor shall comply with the requirements of Title 12, Chapter 9 of the South Carolina Code of Laws, as amended, regarding withholding tax for nonresidents, employees, contractors and subcontractors.

3.18 *In Section 3.7.1, delete the words “the building permit as well as for other” and insert the following sentence at the end of this section:*

Pursuant to Title 10, Chapter 1, Section 180 of the South Carolina Code of Laws, as amended, no local general or specialty building permits are required for state buildings.

3.19 *Delete the last sentence of Section 3.7.5 and substitute the following:*

Adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 7.3.3.

3.20 *Delete the last sentence of Section 3.8.2.3 and substitute the following:*

The amount of the Change Order shall reflect the difference between actual costs, as documented by invoices, and the allowances under Section 3.8.2.1.

3.21 *In Section 3.9.1, insert a comma after the word “superintendent” in the first sentence and insert the following after the inserted comma:*

acceptable to the Owner,

3.22 *Delete Section 3.9.2 and substitute the following:*

3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the name and qualifications of a proposed superintendent. The Owner may reply within 14 days to the Contractor in writing stating (1) whether the Owner has reasonable objection to the proposed superintendent or (2) that the

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

Owner requires additional time to review. Failure of the Owner to reply within the 14-day period shall constitute notice of no reasonable objection.

3.23 *After the first sentence in Section 3.9.3, insert the following sentence:*

The Contractor shall notify the Owner, in writing, of any proposed change in the superintendent, including the reason therefore, prior to making such change.

3.24 *Delete Section 3.10.3 and substitute the following:*

3.10.3 Additional requirements, if any, for the constructions schedule are as follows:
(Check box if applicable to this Contract))

☐ The construction schedule shall be in a detailed precedence-style critical path management (CPM) or primavera-type format satisfactory to the Owner and the Architect that shall also (1) provide a graphic representation of all activities and events that will occur during performance of the work; (2) identify each phase of construction and occupancy; and (3) set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as "Milestone Dates"). Upon review and acceptance by the Owner and the Architect of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents and attached to the Agreement as Exhibit "A." If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect and resubmitted for acceptance. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. Whenever the approved construction schedule no longer reflects actual conditions and progress of the work or the Contract Time is modified in accordance with the terms of the Contract Documents, the Contractor shall update the accepted construction schedule to reflect such conditions. In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone Date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

3.25 *Add the following Section 3.10.4:*

3.10.4 Owner's review and acceptance of Contractor's schedule is not conducted for the purpose of either determining its accuracy and completeness or approving the construction means, methods, techniques, sequences or procedures. The Owner's approval shall not relieve the Contractor of any obligations. Unless expressly addressed in a Modification, the Owner's approval of a schedule shall not change the Contract Time.

3.26 *Add the following Section 3.12.5.1:*

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

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

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

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

3.29 Add the following Sections 3.13.2 and 3.13.3:

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

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

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

including loss of use resulting therefrom,

3.31 *Delete Section 4.1.1 and substitute the following:*

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

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

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

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

The Architect will visit the site as necessary to fulfill its obligation to the Owner for inspection services, if any, and, at a minimum, to assure conformance with the Architect’s design as shown in the Contract Documents and to observe the progress and quality of the various components of the Contractor’s Work, and to determine if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents.

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

On the basis of the site visits, the Architect will keep the Owner informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work.

3.35 *In Section 4.2.5, after the words “evaluations of the” and before the word “Contractor’s,” insert the following:*

Work completed and correlated with the

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

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

3.38 *Delete Section 4.2.14 and substitute the following:*

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

3.39 *Delete Section 5.2.1 and substitute the following:*

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

3.40 *Delete Section 5.2.2 and substitute the following:*

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

3.41 *In the first sentence of Section 5.2.3, delete the words "...or Architect..." in the two places they appear.***3.42** *Delete the words "...or Architect..." in the in the first sentence of Section 5.2.4 and insert the following sentence at the end of Section 5.2.4:*

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

3.43 *Add the following Section 5.2.5:*

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

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

5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise herein or in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

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

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

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

3.45 *Delete the last sentence of Section 5.4.1.*

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

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

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

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

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

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

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

3.49 *Delete Section 7.2.1 and substitute the following:*

7.2.1 A Change Order is a written instrument prepared by the Architect (using State Form SE-480 "Construction Change Order") and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1** The change in the Work;

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

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

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

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

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

3.51 *Delete 7.3.3 and substitute the following:***7.3.3 PRICE ADJUSTMENTS**

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

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

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

3.52 *Delete Section 7.3.7 and substitute the following:*

7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall make an initial determination, consistent with Section 7.3.3, of the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.5. In such case, and also under Section 7.3.3.1.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work.

3.53 *Delete Section 7.3.8 and substitute the following:*

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

3.54 *Add the following Sections 7.5 and 7.6:***7.5 AGREED OVERHEAD AND PROFIT RATES**

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

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

7.6 PRICING DATA AND AUDIT**§ 7.6.1 Cost or Pricing Data.**

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

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

§ 7.6.3 Records Retention.

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

3.55 Delete Section 8.2.2 and substitute the following:

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

3.56 Delete Section 8.3.1 and substitute the following:

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

3.57 Insert the following at the end of Section 9.1:

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

3.58 Delete Section 9.2 and substitute the following:**9.2 SCHEDULE OF VALUES**

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

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

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

3.59 Delete Section 9.3.1 and substitute the following:

Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2., for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require (such as copies of requisitions from Subcontractors and material suppliers) and shall reflect retainage and any other adjustments provided in Section 5 of the Agreement. If required by the Owner or Architect, the Application for Payment shall be accompanied by a current construction schedule.

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

Insert the following at the end of Section 9.3.2:

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

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

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

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

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

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

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

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

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

3.64 *Delete Section 9.7 and substitute following:*

9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment to the Owner, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the time established in the Contract Documents the amount certified by the Architect or awarded by a final dispute resolution order, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased, in accordance with the provisions of Section 7.3.3, by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

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

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

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

3.67 *Delete Section 9.8.3 and substitute the following:*

9.8.3.1 Upon receipt of the Contractor's list, the Architect, with the Owner and any other person the Architect or the Owner choose, will make an inspection on a date and at a time mutually agreeable to the Architect, Owner, and Contractor, to determine whether the Work or designated portion thereof is substantially complete. The Contractor shall furnish access for the inspection and testing as provided in this Contract. The inspection shall include a

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

demonstration by the Contractor that all equipment, systems and operable components of the Work function properly and in accordance with the Contract Documents. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion. If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of reinspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.

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

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

3.69 *In the first sentence of Section 9.9.1, delete the words "Section 11.3.1.5" and substitute the words "Section 11.3.1.3."*

3.70 *Delete Section 9.10.1 and substitute the following:*

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

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

Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner, (6) required Training Manuals, (7) equipment Operations and Maintenance Manuals, (8) any certificates of testing, inspection or approval required by the Contract Documents and not previously provided (9) all warranties and guarantees required under or pursuant to the Contract Documents, and (10) one copy of the Documents required by Section 3.11.

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

3.72 Delete the first sentence of Section 9.10.3 and substitute the following:

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

3.73 Delete Section 9.10.5 and substitute the following:

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

3.74 Add the following Section 9.10.6:

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

3.75 Delete Section 10.3.1 and substitute the following:

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

3.76 Insert the following at the end of Section 10.3.2:

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

3.77 Delete Section 10.3.3 and substitute the following:

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

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

In addition to its obligations under Section 3.18, the

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

OSE FORM 00811

STANDARD SUPPLEMENTARY CONDITIONS

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

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

3.81 *Delete 11.1.2 and substitute the following:*

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

(1) COMMERCIAL GENERAL LIABILITY:

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

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

(a) Combined Single Limit	<u>\$1,000,000</u>
---------------------------------	--------------------

(3) WORKER'S COMPENSATION:

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

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

3.82 *Delete Section 11.1.3 and substitute the following:*

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

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

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

3.83 *Delete Section 11.1.4 and substitute the following:*

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

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

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

3.85 *Delete the language of Section 11.3.1.2 and substitute the word "Reserved."***3.86** *Delete the language of Section 11.3.1.3 and substitute the word "Reserved."***3.87** *Delete Section 11.3.2 and substitute the following:***11.3.2 BOILER AND MACHINERY INSURANCE**

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

3.88 *Delete Section 11.3.3 and substitute the following:***11.3.3 LOSS OF USE INSURANCE**

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

3.89 *Delete Section 11.3.4 and substitute the following:*

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

3.90 *Delete the language of Section 11.3.5 and substitute the word "Reserved."***3.91** *Delete Section 11.3.6 and substitute the following:*

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

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

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

3.94 Delete Section 11.3.9 and substitute the following:

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

3.95 Delete Section 11.3.10 and substitute the following:

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

3.96 Delete Section 11.4.1 and substitute the following:

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

3.97 Delete Section 11.4.2 and substitute the following:

11.4.2 The Performance and Labor and Material Payment Bonds shall:

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

3.98 *Add the following Sections 11.4.3 and 11.4.4:*

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

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

3.99 *Delete Section 12.1.1 and substitute the following:*

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

3.100 *In Section 12.2.2.1, delete the words "and to make a claim for breach of warranty" at the end of the third sentence.***3.101** *In Section 12.2.2.3, add the following to the end of the sentence:*

unless otherwise provided in the Contract Documents.

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

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

3.103 *Delete Section 13.1 and substitute the following:***13.1 GOVERNING LAW**

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

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

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

3.105 *Delete Section 13.3 and substitute the following:***13.3 WRITTEN NOTICE**

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

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

Unless expressly provided otherwise,

3.107 *Add the following Section 13.4.3:*

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

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

3.5 Warranty

3.17 Royalties, Patents and Copyrights

3.18 Indemnification

7.6 Cost or Pricing Data

11.1 Contractor's Liability Insurance

11.4 Performance and Payment Bond

15.1.6 Claims for Listed Damages

15.1.7 Waiver of Claims Against the Architect

15.6 Dispute Resolution

15.4 Service of Process

3.108 *Delete Section 13.6 and substitute the following:*

13.6 INTEREST

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

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

3.110 *Add the following Sections 13.8 through 13.16:*

13.8 PROCUREMENT OF MATERIALS BY OWNER

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

13.9 INTERPRETATION OF BUILDING CODES

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

13.10 MINORITY BUSINESS ENTERPRISES

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

13.11 SEVERABILITY

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

13.12 ILLEGAL IMMIGRATION

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

13.13 SETOFF

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

13.14 DRUG-FREE WORKPLACE

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

13.15 FALSE CLAIMS

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

13.16 NON-INDEMNIFICATION:

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

3.111 *Delete Section 14.1.1 and substitute the following:*

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

- .1** Issuance of an order of a court or other public authority having jurisdiction that requires substantially all Work to be stopped; or

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

- .2** An act of government, such as a declaration of national emergency that requires substantially all Work to be stopped.
- .3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents and the Contractor has stopped work in accordance with Section 9.7

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

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

3.113 *In Section 14.1.4, replace the word “repeatedly” with the word “persistently.”***3.114** *Delete Section 14.2.1 and substitute the following:*

14.2.1 The Owner may terminate the Contract if the Contractor

- .1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials, or otherwise fails to prosecute the Work, or any separable part of the Work, with the diligence, resources and skill that will ensure its completion within the time specified in the Contract Documents, including any authorized adjustments;
- .2** fails to make payment to Subcontractors for materials or labor in accordance with the Contract Documents and the respective agreements between the Contractor and the Subcontractors;
- .3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

3.115 *In Section 14.2.2, delete the parenthetical statement “, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action,” immediately following the word “Owner” in the first line.***3.116** *In Section 14.2.4, replace the words “Initial Decision Maker” with the word “Architect”***3.117** *Add the following Section 14.2.5:*

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

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

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

3.119 *Delete Section 14.4.1 and substitute the following:*

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

3.120 *Delete Section 14.4.2 and substitute the following:*

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

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders; and
- .4 complete the performance of the Work not terminated, if any.

3.121 *Delete Section 14.4.3 and substitute the following:*

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

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

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

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

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

14.5 CANCELLATION AFTER AWARD BUT PRIOR TO PERFORMANCE

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

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

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

3.124 *Delete Section 15.1.2 and substitute the following:***15.1.2 NOTICE OF CLAIMS**

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Architect. Such notice shall include sufficient information to advise the Architect and other party of the circumstances giving rise to the claim, the specific contractual adjustment or relief requested and the basis of such request. Claims by either party arising prior to the date final payment is due must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later except as stated for adverse weather days in Section 15.1.5.2. By failing to give written notice of a Claim within the time required by this Section, a party expressly waives its claim.

3.125 *Delete Section 15.1.3 and substitute the following:***15.1.3 CONTINUING CONTRACT PERFORMANCE**

Pending final resolution of a Claim, including any administrative review allowed under Section 15.6, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will issue Certificates for Payment in accordance with the initial decisions and determinations of the Architect.

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

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

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

3.128 *Delete Section 15.1.6 and substitute the following:***15.1.6 CLAIMS FOR LISTED DAMAGES**

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

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

15.1.6.2 For the Contractor, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest, except to the extent allowed by Section 13.6 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14. Nothing contained in this Section shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

3.129 *Add the following Section 15.1.7:***15.1.7 WAIVER OF CLAIMS AGAINST THE ARCHITECT**

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

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

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

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

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

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

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

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

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

15.6 DISPUTE RESOLUTION

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

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

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

15.6.5 SERVICE OF PROCESS

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

3.132 Add the following Article 16:**ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION****16.1. Inspection Requirements:** *(Indicate the inspection services required by the Contract)*

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

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

Remarks: _____

OSE FORM 00811**STANDARD SUPPLEMENTARY CONDITIONS**

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

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

See Section 012100 ALLOWANCES of the Project Manual

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

See Section 017839 PROJECT RECORD DOCUMENTS of the Project Manual

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

See Project Manual

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

As required by the Contract

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

As required by the Contract

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

None

USC SUPPLEMENTAL
CONDITIONS FOR WORK AT THE BARUCH MARINE FIELD LABORATORY,
HOBCAW BARONY, GEORGETOWN S.C.

1. Contractor's employees shall take all reasonable means not to interrupt the flow of student traffic in building corridors, lobbies and stairs. All necessary and reasonable safety precautions shall be taken to prevent injury to building occupants while transporting materials and equipment through the building to the work area. Providing safe, accessible, plywood pedestrian ways around construction may be required if a suitable alternative route is not available.
2. Fraternalization between Contractor's employees and USC students, faculty or staff is strictly prohibited - zero tolerance!
3. USC will not tolerate rude, abusive or degrading behavior on the job site. Heckling and cat-calling directed toward students, faculty or staff or any other person on USC property is strictly prohibited. Any contractor whose employees violate this requirement will be assessed a fine of up to \$500 per violation.
4. Contractor's employees must adhere to the University's policy of maintaining a drug-free and smoke-free/tobacco free workplace.
5. Contractor must sign a Contractor Key Receipt/Return form before any keys are issued. Keys must be returned immediately upon the completion of the work. The Contractor will bear the cost of any re-keying necessary due to the loss of or failure to return keys.
6. A welding permit must be issued by the Resident Safety Officer before any welding can begin inside a building. Project Manager will coordinate.
7. Contractor must notify the University immediately upon the discovery of suspect material such as those potentially containing asbestos or other such hazardous materials. These materials **must not** be disturbed until approved by the USC Project Manager.
8. At the beginning of the project, the USC Project Manager will establish the Contractor's lay-down area. This area will also be used for the Contractors work vehicles. No personal vehicles will be allowed in this area, or in any areas surrounding the construction site that are not regular or authorized parking lots. Personal vehicles must be parked in the perimeter parking lots. The lay down area will be clearly identified to the contractor by the PM, with a sketch or drawing provided to Parking. In turn, the contractor will mark off this area with a sign containing the project name, PM name, Contractor name and contact number, and end date. Where this area is subject to foot traffic, protective barriers will be provided as specified by the PM. The area will be maintained in a neat and orderly fashion. Note that access to the freight lift, wheelchair lift, handicap parking spaces, and the driveway to the well house and fire hydrant at the south end of the building must be kept free at all times.

9. Contractor will be responsible for providing its own temporary toilet facilities.
10. Use of USC communications facilities (telephones, computers, etc.) by the Contractor is prohibited, unless prior arrangements are made with the USC Project Manager.
11. For all projects over \$100,000, including IDC's, an SE-395, Contractor Performance Evaluation, will be completed by the USC Project Manager and reviewed with the GC at the beginning of the project and a copy given to the GC. At the end of the project the form will be completed and a Construction Performance rating will be established.
12. Contractor is responsible for removal of all debris from the site, and is required to provide the necessary dumpsters which will be emptied at least one (1) times per week. Construction waste must not be placed in University dumpsters. The construction site must be thoroughly cleaned with all trash picked up and properly disposed of on a daily basis and the site must be left in a safe and sanitary condition each day. The University will inspect job sites regularly and will fine any contractor found to be in violation of this requirement an amount up to \$1,000.00 daily per violation.
13. Contractor must provide all O&M manuals, as-built drawings, and training of USC personnel on new equipment, controls, etc. prior to Substantial Completion. Final payment will not be made until this is completed.
14. Tree protection fencing is required to protect existing trees and other landscape features to be preserved within a construction area. The limits of this fence will be evaluated for each situation with the consultant, USC Arborist and USC Project Manager. The tree protection fence shall be 6' high chain link fence unless otherwise approved by USC Project Manager. No entry or materials storage will be allowed inside the tree protection zone. A 3" layer of mulch shall be placed over the tree protection area to maintain moisture in the root zone if USC Arborist determines that construction may decrease amount of moisture needed to sustain health of tree(s).
15. All large vehicle traffic to include cranes and material deliveries need to be coordinated with the USC Project Manager or designated official on site. Preferred access of such vehicles will be identified to the contractor as required before access will be granted. A path of minimum size must always be used and marked to reduce the damage to the lawn and landscaping. Items on the property damaged due to unnecessary vehicle traffic will be repaired or replaced at the contractor's expense.
16. Contractor shall water trees and other landscape material as directed by USC Arborist until site is returned to Owner.
17. Where it is necessary to cross walks, tree root zones (i.e., under canopy) or lawns the following measures shall be taken: For single loads up to 9,000 lbs., a 3/4" minimum plywood base shall be placed over areas impacted. For single loads over 9,000 lbs., two layers of 3/4" plywood is required.

18. For projects requiring heavy loads to cross walks, tree root zones or lawns on a regular basis (as determined by USC Project Manager), a construction entry road consisting of 10' X 16' oak logging mats placed on 12" coarse, chipped, hardwood base. Mulch and logging mats shall be supplemented throughout the project to keep matting structurally functional.
19. Any damage to existing landscaping (including lawn areas) will be remediated at Contractor's expense before final payment is made.
20. Any damage to existing conditions, including but not limited to, of the attic space framing and ductwork, will be remediated at the Contractor's expense at the time of such occurrence and before final payment.
21. All power outages or shut-downs for the transferring of electrical feeds to associated equipment from the existing panels to the new panels are to be coordinated with the USC Project Manager and USC's on site staff. The Contractor is to provide a minimum of 72 hours notice and such work may be required to be done outside of regular working hours (after 4pm) or during the weekend in accordance with USC's requirements with ongoing research and functions occurring within the building during the duration of the project scope. The Contractor is to prepare and provide a phasing plan associated with the anticipated electrical shut downs and coordinate with the Owner/Agency for approval.
22. The interior spaces of the building are to be protected against storm water intrusion during the project duration. The Contractor is to prepare and provide a phasing plan associated with the sequencing of exposed areas of the roof and coordinate with the Owner/Agency for approval or provide means of an effective secondary roofing system during the replacement of the existing roof assembly.

Contractor Vehicle Requirements on Campus

1. This project is located on the private property of the Belle W. Baruch Foundation (BWBF). All who access the site are subject to the rules and regulations of the BWBF. Access to the site is through an electronic gate off the main entrance. All contractors and subcontractors will need to sign for cards allowing access to the site. All motorized vehicles on the University campus are expected to travel and park on roadways and/or in parking stalls.
2. All motorized vehicles that leak or drip liquids are prohibited from entering the area. This is an environmentally protected and sensitive research site. No fuel or other potentially hazardous material will be stored on site. All precautions and effort must be taken to ensure that such substances are not spilled when in use. All materials and containers must be removed from the site immediately and all areas must be cleaned at the end of each working day.
3. Contractors, vendors, and delivery personnel are required to obtain prior parking authorization before parking in a designated space. Parking and storage space will be designated by USC Project Manager and or on site officials.

4. Drivers of equipment or motor vehicles that damage university hardscape or landscape will be held personally responsible for damages and restoration expense. Special provisions will be communicated to the contractor when traversing the single lane access road.
5. Vehicle drivers who park on landscape or drives must be able to produce written evidence of need or emergency requiring parking on same.
6. 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.
7. All drivers of equipment and vehicles will be respectful of University landscape, equipment, structures, fixtures and signage.
8. All incidents of property damage will be reported to Parking Services or the Work Management Center.

Project Name: Marine Laboratory Roof Replacement

Project Number: H27-1934

University of South Carolina

CONTRACTOR'S ONE YEAR GUARANTEE

STATE OF _____ South Carolina _____.

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 _____

Performance Bond

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

Name: _____

Address: _____

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

Name: _____

Address: _____

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

Name: University of South Carolina

Address: 743 Greene Street
Columbia, SC 29208

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

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

State Project Name: Marine Laboratory Roof Replacement

State Project Number: H27-I934

Brief Description of Awarded Work, as found on the SE-330, Bid Form: Replacement of existing low-slope membrane roofing w/ new roof assembly, relocation of existing electrical panels/conduit to rooftop equipment, ductwork replacement at exist penetration through shingled roof, and Alternate Scope if accepted as part of the contract scope.

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

Name: LS3P ASSOCIATES LTD.

Address: 701-A Lady 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____ BOND NUMBER _____
(shall be no earlier than Date of Contract)

CONTRACTOR

SURETY

By: _____
(Seal)

By: _____
(Seal)

Print Name: _____

Print Name: _____

Print Title: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

Witness: _____

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

Performance Bond

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

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference

2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. The Surety's obligation under this Bond shall arise after:

3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or

3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.

4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:

4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or

4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or

4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:

4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or

4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.

5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:

5.1 Surety in accordance with the terms of the Contract; or

5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.

6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.

6.1 If the Surety proceeds as provided in paragraph 4.4, and the

Agency refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Agency shall be entitled to enforce any remedy available to the Agency.

6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.

7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:

7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and

7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and

7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and

7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.

9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.

10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. Definitions

11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.

11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.

SE-357

Labor and Material Payment Bond

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

Name: _____

Address: _____

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

Name: _____

Address: _____

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

Name: University of South Carolina

Address: 743 Greene Street
Columbia, SC 29208

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

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

Project Name: Marine Laboratory Roof Replacement

Project Number: H27-I934

Brief Description of Awarded Work, as found on the SE-330, Bid Form: Replacement of existing low-slope membrane roofing w/ new roof assembly, relocation of existing electrical panels/conduit to rooftop equipment, ductwork replacement at exist penetration through shingled roof, and Alternate Scope if accepted as part of the contract scope.

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

Name: LS3P ASSOCIATES LTD.

Address: 701-A Lady 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 and Material Payment Bond to be duly executed on its behalf by its authorized officer, agent or representative.

DATED this _____ day of _____, 20____ BOND NUMBER _____
(shall be no earlier than Date of Contract)

CONTRACTOR

SURETY

By: _____
(Seal)

By: _____
(Seal)

Print Name: _____

Print Name: _____

Print Title: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

Witness: _____

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

Labor and Material Payment Bond

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

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

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

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

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

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

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

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

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

13. DEFINITIONS

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

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

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

SECTION 011000 - 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 this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Access to site.
 - 4. Work restrictions.
 - 5. Specification and drawing conventions.

1.3 PROJECT INFORMATION

- A. Project Identification: Discovery Center Renovations
 - 1. Project Location: Hobcaw Barony, 22 Hobcaw Road, Georgetown, SC 29440
 - 2. Owner: Belle W. Baruch Foundation / University of South Carolina.
 - 3. Owner's Representatives: Tom Opal, University of South Carolina. (803) 777-7076
Dwight Cathcart, University of South Carolina. (803) 777-9824
- B. Architect Identification: The Contract Documents were prepared for Project by LS3P ASSOCIATES LTD., 701-A Lady Street, Columbia, SC 29201.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists, generally, of the following:
 - 1. Project includes, but is not limited to, the removal of the existing low-slope membrane roofing at the mechanical equipment well and replacement with a new roof assembly, relocation of existing electrical panels and conduit runs on the surface of the roof, and ductwork replacement at the existing penetration through the shingled roof facing the mechanical well. Alternate No. 1 scope includes replacement of the shingled roof and flashing details of the associated penetrations through the shingled roof as indicated in the documents.
- B. Type of Contract
 - 1. Project will be constructed under a single prime contract.
- C. The Work shall be conducted in a single phase, with the date of Substantial Completion to be thirty (45) calendar days following the date of the Notice to Proceed, and Final Completion & Close-Out fifteen (15) calendar days after Substantial Completion.

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 areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to area of work.

- C. Parking: Park in designated areas only.
- D. Firearms: No firearms, concealed or otherwise, are permitted on site. Post notice at entrance to site.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal business working hours of 8 a.m. to 5 p.m., Monday through Friday, except as otherwise indicated or coordinated with the Owner.
 - 1. Noise: Comply with local ordinances for hours of construction operations that may result in excessive noise.
- C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor air intakes.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the CSI/CSC's "MasterFormat 2004" numbering system.
- B. The Specifications are directed to the Contractor. Requirements expressed as directions are to be performed by Contractor or by sub-contractors under his direction. Occasionally, for clarity, requirements for Work to be performed by Contractor, indirectly by the Contractor, or by Others will be so stated.
- C. 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 context. 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.
- D. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- E. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the 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 scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012100 - ALLOWANCES

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 governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Include defined costs associated with allowances in base bid.
- B. Types of allowances include the following: Lump Sum allowances.
- C. Requirements:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
 - 2. Division 01 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.
 - 3. Divisions 02 through 33 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 LUMP SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.
- C. All costs for performing the work described under the quantity allowance are included in the allowance. These costs include materials, delivery, installation, taxes, insurance, equipment rental, and similar costs, **and Contractor's overhead and profit.**
- D. When work is performed and actual quantity or extent is measured, the Contract Sum will be adjusted by Change Order based on Unit Cost indicated in the Agreement.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
 - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

- C. Unused amounts of moneys that define the value of the allowances, included integrally in the work and materials allowances, shall be credited to the Owner by deduct change order prior to approval of Final Application for Payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 UNFORESEENS/ CONTINGENCY ALLOWANCE

- A. Unforeseens/Contingency Allowance is limited to those items and Work hidden, undetectable, or unforeseen and not visible from pre-bid, on-site observation, or not shown, called-for, or reasonably implied in the Contract Documents.
- B. Use the renovation/unforeseens allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- C. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the renovation/unforeseens allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- D. Change Orders authorizing use of funds from the renovation/unforeseens allowance will include Contractor's related costs and reasonable overhead and profit margins.
- E. At Project closeout, credit unused amounts remaining in the renovation/unforeseens allowance to Owner by Change Order.

3.2 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Plywood: The General Construction Work shall include in the Base Bid Proposal the following Allowances:
 - 1. Quantity Allowance: **2080 square feet.**
- B. Allowance No. 2: Lumber (2x4): The General Construction Work shall include in the Base Bid Proposal the following Allowances:
 - 1. Quantity Allowance: **50 linear feet.**
- C. Allowance No. 3: Lumber (2x6): The General Construction Work shall include in the Base Bid Proposal the following Allowances:
 - 1. Quantity Allowance: **50 linear feet.**
- D. Allowance No. 4: Unforeseens/Contingency: The General Construction Work shall include in the Base Bid Proposal the following Allowances:
 - 1. **\$17,500.00** for Owner's General Contingency and Unforeseen Conditions.

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. See Division 01 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes (unless excluded by other provisions of the Contract), overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price No. 1 – Plywood:
 - 1. Description: Plywood, per 061005 Rough Carpentry for Roofing.
 - 2. Quantity Allowance: Refer to Division 01 Section "Allowances" for base bid quantity allowance related to this unit price.
 - 3. Unit of Measurement: Square feet.
- B. Unit Price No. 2 – Lumber (2x4):
 - 1. Description: Lumber (2x4), per 061005 Rough Carpentry for Roofing.

2. Quantity Allowance: Refer to Division 01 Section "Allowances" for base bid quantity allowance related to this unit price.
 3. Unit of Measurement: Linear-foot.
- C. Unit Price No. 3 – Lumber (2x6):
1. Description: Lumber (2x6), per 061005 Rough Carpentry for Roofing.
 2. Quantity Allowance: Refer to Division 01 Section "Allowances" for base bid quantity allowance related to this unit price.
 3. Unit of Measurement: Linear-foot.

END OF SECTION 012200

INTENTIONAL BLANK PAGE

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.
- B. Base Bid: The amount for which the bidder proposes to perform the Work, not including that work for which Alternate bids are also submitted.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each Alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Architectural Laminated Shingles.

1. Base Bid: 1. Removal and replacement of existing shingle on Roof Area B as needed to complete installation of thermoplastic roof membrane and flashing for new roof penetrations in accordance with section 07 31 05, Architectural Laminated Shingles.
2. Alternate No. 1: In addition to the areas indicated in the Base Bid, the work includes complete removal of all existing asphalt shingles, underlayment, components and accessories down to the existing deck on Roof Area B and installation of new Asphalt architectural laminated shingles, underlayment system, all associated flashings, and ridge vents in accordance with section 07 31 05, Architectural Laminated Shingles.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Division 01 Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 2. Divisions 02 through 33 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.4 SUBMITTALS

- A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form provided in Project Manual.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. 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.
 - d. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section, indicating all differences from specification. Significant qualities may include

- attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
- e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - f. Evidence that proposed product provides specified warranty.
 - g. Samples, where applicable or requested.
 - h. Certificates and qualification data, where applicable or requested.
 - i. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - j. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - k. Research reports evidencing compliance with building code in effect for Project.
 - l. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - m. Cost information, including a proposal of change, if any, in the Contract Sum.
 - n. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - o. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Field Order, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible and has been coordinated with other portions of the Work.
 - f. Requested substitution provides specified warranty.
 - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible and has been coordinated with other portions of the Work.

- h. Requested substitution provides specified warranty.
- i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - 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. Division 01 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, on AIA Document G710, "Architect's Supplemental Instructions."

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 supplemental or revised Drawings and Specifications.
 - 1. 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 calendar 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 Division 01 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 forms acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Division 01 Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on the Office of the State Engineer SE-480 Construction Change Order form. See attachment at the end of this Section.

1.7 FIELD ORDER

- A. Field Order: Architect may issue a Field Order on State Construction's Field Order Form. Field Order instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Field Order 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 Field Order.
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 012600

INTENTIONAL BLANK PAGE

SECTION 012900 - 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. Division 01 Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
 - 3. Division 01 Section 017700 "Closeout Procedures" for requirements precedent to final application for payment.

1.3 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 Application for Payment.
 - 3. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
- 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, with separate columns to indicate the following for each item listed:
 - a. Description of the Work.
 - b. 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.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual Table of Contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. 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. Include evidence of insurance.
6. 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.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

1.4 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 Final Acceptance, 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.
1. Submit draft copy of Application for Payment prior to due date for review by Architect.
- C. Application for Payment Forms: Use AIA Document G702 and Continuation Sheet included in Project Manual 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.
 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 approved Change Orders, after all signatures are executed.
 4. Provide Sales and Use Tax Report with each Application for Payment.
- 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.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- F. Transmittal: Submit five 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: Owner reserves the right to require waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers with each Application for Payment.
1. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 2. 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. Products list (preliminary if not final).
 5. Schedule of unit prices.
 6. Submittal schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- I. Application for Payment at Final Acceptance: After Architect issues the Certificate of Final Acceptance, 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.
- 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 Final Acceptance 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 012900

SECTION 013100 - 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. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Project meetings.
- B. Related Requirements:
 - 1. Division 01 Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Division 01 Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services.
 - 3. Division 01 Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request 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: Prior to 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. Keep list current at all times.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone.

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.
 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.
- 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 for coordination of Owner-furnished products.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's construction schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
- D. 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 COORDINATION DRAWINGS

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

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
2. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
3. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Division 01 Section 013300 "Submittal Procedures."

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 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: Form bound in the Project Manual.
- 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 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 Division 01 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 monthly. 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.
 8. Identification of related Minor Change in the Work, Field Order, Proposal Request, and Change Order as appropriate.
- 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.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, Architect, and Contractor.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing and long-lead items.
 - c. Designation of key personnel and their duties.
 - d. 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.
 - m. Work restrictions.
 - n. Working hours.
 - o. Responsibility for temporary facilities and controls.
 - p. Procedures for moisture and mold control.
 - q. Procedures for disruptions and shutdowns.
 - r. Construction waste management and recycling.
 - s. Parking availability.
 - t. Office, work, and storage areas.
 - u. Equipment deliveries and priorities.
 - v. First aid.
 - w. Security.
 - x. Progress cleaning.
 - 3. 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 and Owner 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, including special inspections.
 - 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: Architect will conduct progress meetings at monthly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner and Architect, Contractor, each 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: The Contractor shall update and revise the 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: Contractor, each 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. Representatives of Owner and Architect reserve

- the right to attend. 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. Construction Schedule: Review progress since the last coordination meeting. Determine whether the construction 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.
 - b. Schedule Updating: Revise the 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.
- F. Project Closeout Conference: Architect will schedule and conduct a project closeout conference, at a time convenient to Owner, Architect, and Contractor, but no later than 90 days prior to the scheduled date of Beneficial Occupancy.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Beneficial Occupancy and for final inspection for acceptance.

- c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for delivery of material samples, attic stock, and spare parts.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Final Acceptance and for final payment.
 - i. Submittal procedures.
 - j. Installation of Owner's furniture, fixtures, and equipment.
 - k. Responsibility for removing temporary facilities and controls.
4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

INTENTIONAL BLANK PAGE

SECTION 013200 - 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. Startup construction schedule.
 - 2. Contractor's construction schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Special reports.
- B. Related Requirements:
 - 1. Division 01 Section 011000 "Summary" for work restrictions and special requirements.
 - 2. Division 01 Section 013300 "Submittal Procedures" for submitting schedules and reports.
 - 3. Division 01 Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. General: Refer to glossary of terms in AGC's "Construction Planning & Scheduling" for terminology used in this section.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Two paper copies.
 - 2. Digital files may be acceptable in lieu of paper copies with prior approval of the Architect.
- B. Startup construction schedule.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration,

remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Daily Construction Reports: Submit at monthly intervals.

G. Material Location Reports: Submit at monthly intervals.

H. Site Condition Reports: Submit at time of discovery of differing conditions.

I. Special Reports: Submit at time of unusual event.

1.5 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

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

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

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

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Acceptance.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each 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 long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule.

- Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section 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 14 days for startup and testing.
 5. Beneficial Occupancy: Indicate completion in advance of date established for Beneficial Occupancy, and allow time for Architect's administrative procedures necessary for certification of Beneficial Occupancy.
 6. Punch List and Final Acceptance: Include not more than 21 days or the number of days indicated in the Agreement for punch list and Final Acceptance.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Owner-Furnished Products: Include a separate activity for each product.
 2. Work Restrictions: Show the effect of work restrictions on the schedule.
 3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Deliveries.
 - e. Mockups.
 - f. Fabrication.
 - g. Sample testing.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 4. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Beneficial Occupancy.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Beneficial Occupancy, and Final Acceptance.
- F. 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.

- G. 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.
- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 45 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Mobilization and demobilization.

- b. Utility interruptions.
 - c. Testing and commissioning.
 - d. Punch list and Final Acceptance.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
 5. Float: Indicate float time for each activity.
 - a. 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.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
 1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.
- G. Causes for Extensions of Time:

1. The Contract completion date will be adjusted only for causes specified in the Contract. In the event the Contractor requests an extension of the Contract completion date, the Contractor shall furnish justification and supporting evidence as required by this Section and the General Conditions. The Owner will, after receipt of such justification and supporting evidence, make findings of fact and advise the Contractor in writing thereof. If the Owner determines that the Contractor is entitled to an extension of the Contract completion date, the Owner's determination of the time extension owed shall be based upon the approved CPM schedule or update. Actual delays in activities, which do not affect the scheduled Contract completion date, shall not serve as the basis for a change in Contract completion time.
2. The procedure for preparing and presenting delay justification is as follows:
 - a. Create a schedule activity (or activities) that represent the scope of the change or delay.
 - b. Assign durations and cost/manpower resources to these new activities.
 - c. Determine appropriate logic ties for these new activities. Assign predecessors and successors so that these activities can tie into the existing schedule activities.
 - d. These impact activities should be loaded into a separate copy of the updated schedule that immediately precedes the impact issue's time frame. For instance, if an impact issue occurs during mid-April, the new activities should be input into the March 31 (status date) update.
 - e. Recalculate the Schedule with these impact activities in place.
3. The Impacted Schedule, along with the backup data describing the new schedule activities and logic ties which comprise the impact/delay issues, will be submitted to the Owner for review and approval. If approved, these impact/delay issues will become a permanent part of the Project Schedule. The Contractor shall not unilaterally make changes to the Project Schedule to justify schedule impacts without the approval of the Owner.
4. Activity delays shall not automatically mean that an extension of the Contract Time is warranted or due the Contractor. Only those delays which impact the imposed Contract Completion Date or other CPM and contract milestone dates will be considered for time extensions.
5. Failure of the Contractor to furnish justification and supporting evidence for an extension of time, as detailed in this Section, within thirty (30) calendar days of the changed condition shall constitute a waiver of any claims for time extension associated with the issue.

2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Accidents.

8. Meetings and significant decisions.
 9. Unusual events (see special reports).
 10. Stoppages, delays, shortages, and losses.
 11. Meter readings and similar recordings.
 12. Emergency procedures.
 13. Orders and requests of authorities having jurisdiction.
 14. Change Orders received and implemented.
 15. Field Orders received and implemented.
 16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial completions and occupancies.
 19. Beneficial Occupancy authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. 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.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day 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 completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect, Owner, 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 013200

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. Division 01 Section 012900 "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section 013100 "Project Management and Coordination" for submitting Coordination Drawings.
 - 3. Division 01 Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Division 01 Section 014000 "Quality Requirements" for submitting test and inspection reports.
 - 5. Division 01 Section 017700 "Closeout Procedures" for submitting closeout and maintenance material submittals.
 - 6. Division 01 Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 7. Division 01 Section 017839 "Project Record Documents" for submitting record Drawings and record Specifications.

1.3 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. Name of subcontractor.
 - d. Description of the Work covered.
 - e. Scheduled date for Architect's final release or approval.
 - f. Scheduled date of fabrication.
 - g. Scheduled dates for purchasing.
 - h. Scheduled dates for installation.
 - i. Activity or event number.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Contractor's Use Of Architect's CADD Files:

1. CADD Drawings: CADD files on electronic media are available to the Contractor from the Architect in accordance with the "Digital Data Letter of Agreement", attached at the end of this Section. Only plan files will be available; detail sheet files will not be available. Consultant drawings will be made available on electronic media, including but not limited to Structural, Plumbing/Fire Protection, Mechanical and Electrical. CADD files are provided for information purposes only.
2. Digital Reproduction of Documents and Instruments of Service (limited to CADD drawings only and not to be considered Contract Documents as defined by the General Conditions for the Contract for Construction) may be obtained for specific qualified purposes with appropriate authorization and subject to a Letter of Agreement stating Terms and Conditions for release.
3. Autodesk® AutoCAD® drawings are represented in the DWG file format. Adobe® PDF files are not modifiable and may be viewed using Adobe Acrobat Reader®, available as a free download at www.Adobe.com.
4. The Contract Documents executed or identified in the Owner / Contractor Agreement shall prevail in case of an inconsistency with subsequent versions made through manipulatable electronic operations involving computers.
5. The Contractor shall not transfer or reuse Instruments of Service in electronic or machine-readable form without the prior written consent of the Architect.
6. Refer to 'Digital Data Letter of Agreement' immediately following this section.

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. Submittal Period: Provide all submittals to Architect and to Architect's Consultants within 180 calendar days of the Notice to Proceed.
 1. If submittals are not provided within the submittal period stated above, the Contractor shall provide one of the brands specified. No alternate manufacturers will be considered for review beyond the allowable submittal period. This does not relieve the Contractor from responsibility to provide all required shop drawings, product data, and samples.
 2. If the number of submittals not received within the submittal period is significant or their nature deemed of specific importance, the Architect may recommend that the Owner suspend or delay payment to the Contractor until such time as the required submittals have been received.
- D. 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. Critical Review: Architect will endeavor to review critical submittals within 15 days.
 - a. Identify critical, long lead item submittals and submittals that require expedited (shorter) turn-around times within the submittal schedule.
 2. Initial Review: Architect will endeavor to perform initial review of submittal within 30 days. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 3. Resubmittal Review: Architect will endeavor to review resubmittals within 15 days.
 4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals are to be transmitted simultaneously to Architect and to Architect's consultants, reviewing parties will endeavor to review submittals within 30 days. Submittal will be returned to Architect before being returned to Contractor.
 5. Deferred Review: For non-critical submittals, including products that are not required until later in the Project, the Architect reserves the right to defer review to within 45 days.
- E. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
 1. Transmittal Form: Use form acceptable by Architect.
 2. Provide one transmittal per specification section submittal. Combining specification sections on a single transmittal is not allowed.
 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- F. Options: Identify options requiring selection by Architect.

- G. Deviations: Identify deviations from requirements in the Contract Documents, including minor variations and limitations.
- H. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, and revisions other than those requested by Architect on previous submittals. Include same identification information as related submittal.
- I. 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 and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- J. Distribution: Furnish copies of approved submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Retain complete copies of submittals on Project site. Use only approved submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Action Submittals: Submit four paper copies of each submittal, unless otherwise indicated. Submit five copies of submittal for portions of work designed by consulting design professionals. Architect will return two copies. If additional copies are required for distribution, the Contractor is responsible for making copies of the reviewed submittals that are returned by the Architect.
 - 2. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 - 3. 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 notarized statement on original paper copy certificates and certifications where indicated.
 - 4. Transmittal:
 - a. Transmit submittals for contract requirements and general construction work directly to the Architect.
 - b. Transmit submittals to Architect's and Owner's Consultants as indicated below with a copy of the transmittal sheet to the Architect.
 - 1) Mechanical: RMF Engineering, Inc.
 - 2) Electrical: RMF Engineering, Inc.
 - 3) Building Envelope: ADC Engineering, Inc.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's installation instructions.
 - c. Manufacturer's written recommendations.
 - d. Manufacturer's product specifications.
 - e. Standard color charts.
 - f. Statement of compliance with specified referenced standards.
 - g. Testing by recognized testing agency.
 - h. Application of testing agency labels and seals.
 - i. Notation of coordination requirements.
 - j. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit paper copies of Product Data.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 3. Submit paper copies of Shop Drawings.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line.
 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.
- E. Subcontractor, Supplier and Manufacturer List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including major subcontractors, suppliers, and manufacturers.
1. The list shall be complete with names and addresses.
 2. The list shall be submitted prior to the Contractor's first Application for Payment.

- F. 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.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- H. 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.
- I. 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.
- J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- O. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- P. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed

before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

- Q. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- R. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Manufacturer 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 paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Manufacturer 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. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

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

- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:

SUBMITTAL REVIEW		
ARCHITECT'S REVIEW		RESPONSE REQUIRED BY CONTRACTOR
No exceptions taken <input type="checkbox"/>	Rejected <input type="checkbox"/>	Confirm <input type="checkbox"/>
Note markings <input type="checkbox"/>	Comments Above <input type="checkbox"/>	Resubmit <input type="checkbox"/>
<p>Architect's review is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications, nor departures therefrom. The Contractor remains responsible for details, and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.</p>		
LS3P ASSOCIATES LTD.		
By _____		Date _____

- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements.
- 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 not be reviewed and may be discarded.

END OF SECTION 013300

INTENTIONAL BLANK PAGE

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 and Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Divisions 02 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. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified

installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Composite Exterior Wall Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
 2. In-Place Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. 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.
- E. 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.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. 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).
- J. Experienced: When used with an entity or individual, if not otherwise defined "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 the Architect.
 - 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the 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 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 - 1. Project quality-control manager may also serve as Project superintendent.

- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 - 2. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 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.

1.8 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 systems, assemblies, or products 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.
- H. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.
 1. Submit copy of certificate of calibration, made by accredited calibration agency.
- I. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- K. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

- L. Mockups, General: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect seven working days in advance of dates and times when mockups will be constructed.
 3. Employ supervisory personnel who will oversee mockup construction. Employ workers to build the mockup that will be employed to perform the work demonstrated by the mockup during the construction phase of the Project.
 4. Demonstrate the proposed range of aesthetic effects and workmanship.
 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven working days for initial review and each re-review of each mockup.
 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 7. Demolish and remove mockups when directed unless otherwise indicated.
- M. Composite Exterior Wall Mockups: Before ordering materials or commencing elements of the Work noted as part of the exterior wall mockup, build mockup for approval of exterior materials and finishes. Coordinate installation of exterior envelope materials and products in individual Specification Sections, along with supporting materials.
1. The mockup includes, but is not limited to, the following materials:
 - a. Brick.
 - b. Masonry reinforcing.
 - c. Metal framing.
 - d. Sheathing.
 - e. Metal wall panels.
 - f. Aluminum-framed entrances and storefront.
 - g. Glazing.
 - h. Sealants.
 - i. Air barrier.
 - j. Insulation.
 - k. Flashing.
 2. Schedule: Allow time for the construction of the mockup and review by Architect.
 3. Submittal: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, finish and color designations, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.
- N. In-Place Mockups: Before installing portions of the Work requiring in-place mockups, construct mockups incorporating required materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work.
1. Perform field-testing as indicated on in-place mockups to verify compliance with requirements.
 2. Approved mockups may be incorporated into the Work.

1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be the responsibility of the Contractor.
- 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 Division 01 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. The testing agency and its representatives do not have the authority to authorize work or changes in the Work.
 3. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 4. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 5. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 6. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 7. 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. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- 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.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.
- J. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Contract Documents, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Final Acceptance, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Commissioning Authority'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.
- 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 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. Division 01 Section 012500 "Substitution Procedures" for requests for substitutions.

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 SUBMITTALS

- A. Comparable Product Requests: Comply with requirements in Division 01 Section 012500 "Substitution Procedures."

- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility: Contractor is responsible for providing products and construction methods compatible with other products and construction methods used on the Project.

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.

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 Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
- 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. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. 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. Manufacturers:

- a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
- b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. 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 Division 01 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 conditions of Division 01 Section 012500 "Substitution Procedures" are satisfied. If the conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements.

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 the Work.
- B. Related Requirements:
 - 1. Division 01 Section 011000 "Summary" for limits on use of Project site.
 - 2. Division 01 Section 013300 "Submittal Procedures" for submitting surveys.
 - 3. Division 01 Section 017329 "Cutting and Patching" for procedural requirements for cutting and patching.
 - 4. Division 01 Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
 - 5. Section 024119 "Selective Structure Demolition" for demolition and removal of selected portions of the building.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer, if applicable.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

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.
 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.
 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. 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. Existing Utility Information: Furnish information to local utility, Architect, and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 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: Engage a professional engineer to 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.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 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.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Engage a professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Final Acceptance, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 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 Architect and Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Architect and 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.

3.6 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Final Acceptance.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. 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.

3.7 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.
 - 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 multiple trades 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. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.
- G. Waste Disposal: 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 Division 01 Section 017419 "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Final Acceptance.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 23 Sections for Mechanical and Division 26 Sections for Electrical.
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

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

3.10 CORRECTION OF THE WORK

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

END OF SECTION 017300

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 DEFINITIONS

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

1.4 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 result in increased maintenance or decreased operational life or safety. Operating elements include the following:
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.
 - 3. Fire-suppression systems.
 - 4. Mechanical systems piping and ducts.
 - 5. Control systems.
 - 6. Communication systems.
 - 7. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
 - 1. Water, moisture, or vapor barriers.
 - 2. Membranes and flashings.
 - 3. Equipment supports.
 - 4. Piping, ductwork, vessels, and equipment.
 - 5. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's

aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. 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.
 - 4. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 - 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

INTENTIONAL BLANK PAGE

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

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 the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Disposing of nonhazardous demolition and construction waste.
- B. Related Requirements:
 - 1. Division 02 Section 024119 "Selective Demolition" for disposition of waste resulting from demolition.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- E. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. Contractor is encouraged to salvage and recycle as much nonhazardous construction and demolition waste as practical, without incurring additional costs to the Owner.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT AND DISPOSAL, GENERAL

- A. General: Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management during the entire duration of the Contract.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse as indicated and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.

3.3 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 017419

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 Acceptance procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Division 01 Section 017300 "Execution" for progress cleaning of Project site.
 - 2. Division 01 Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Division 01 Section 017839 "Project Record Documents" for submitting record Drawings, and record Specifications.
 - 4. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

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 Acceptance.

1.4 CLOSEOUT SUBMITTALS

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

1.5 MAINTENANCE MATERIAL SUBMITTALS

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

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Submittals Prior to Substantial Completion: Complete the following a minimum of 7 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. 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.
2. 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.
3. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
4. Submit closeout submittals specified in individual Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
5. Submit maintenance material submittals specified in individual Divisions 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect and Owner. 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 Owner's signature for receipt of submittals.
6. Submit test/adjust/balance records.
7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- B. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Commissioning: Functional performance testing complete.
5. Perform preventive maintenance on equipment used prior to Substantial Completion.
6. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
7. Advise Owner of changeover in utilities.

8. If requested, participate with Owner in conducting inspection and walkthrough with local emergency responders.
9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
10. Complete final cleaning requirements, including touchup painting.
11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

C. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection, or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

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

1.7 FINAL ACCEPTANCE PROCEDURES

A. Submittals Prior to Final Acceptance: Before requesting final inspection for determining Final Acceptance, complete the following:

1. Submit a final Application for Payment according to Division 01 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.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine Final Acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, and with the approval of the Office of State Engineer, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection, and with the approval of the Office of State Engineer, or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

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

1.8 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.
 - e. Page number.
4. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Architect will return annotated file.

1.9 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 paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

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:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils that display contamination with particulate matter on inspection.
 - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

- p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section 017419 "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Beneficial Occupancy.
- 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 017823 - OPERATION AND MAINTENANCE DATA

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 preparing operation and maintenance manuals, including the following:
 - 1. Operation manuals for systems, subsystems, and equipment.
 - 2. Product maintenance manuals.
 - 3. Systems and equipment maintenance manuals.
- B. Related Requirements:
 - 1. Division 01 Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operations and maintenance submittals are acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves.
- C. Initial Manual Submittal: Submit two draft copies of operation and maintenance manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments on whether general scope and content of manual are acceptable.
 1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.
- D. Final Manual Submittal: Submit manuals in final form prior to requesting inspection for Substantial Completion.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

- 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 the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: 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 and contact information for Contractor.
 6. Name and contact information for Architect.
 7. Name and contact information for Commissioning Authority.
 8. Names and contact information for major consultants to the Architect that designed the systems contained in the 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.
 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

- 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.
- E. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
 - 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf or post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. 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 of the manual. 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 storage media for computerized electronic equipment.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.

10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
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 the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

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.

2.3 PRODUCT MAINTENANCE MANUALS

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 and drawing or schedule designation or identifier where applicable.

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 the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. 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.

1. Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

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 and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.

- 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.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- 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.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. 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.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- C. 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.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. 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.
 2. Comply with requirements of newly prepared record Drawings in Division 01 Section 017839 "Project Record Documents."
- E. Comply with Division 01 Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

INTENTIONAL BLANK PAGE

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 Specifications.
- B. Contractor shall provide required documentation and cooperate with Architect so that the Architect can prepare and furnish to the Owner, a record set of documents.
- C. Related Requirements:
 - 1. Division 01 Section 017300 "Execution" for final property survey.
 - 2. Division 01 Section 017700 "Closeout Procedures" for general closeout procedures.
 - 3. Division 01 Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 4. Divisions 02 through 33 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings:
 - 1. Submit one set of marked-up record prints.
- B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda, contract modifications, and identification of manufacturer provided for each product.

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 data as soon as possible after obtaining it.
 - c. 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. Revisions to electrical circuitry.
 - e. Actual equipment locations.
 - f. Duct size and routing.
 - g. Locations of concealed internal utilities.
 - h. Changes made by Change Order or Field Order.
 - i. Details not on the original Contract Drawings.
 - j. Field records for variable and concealed conditions.
 - k. Record information on the Work that is shown only schematically.
 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. Note Field Order numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

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

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as paper copy.

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

INTENTIONAL BLANK PAGE

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused or recycled.
- B. Related Sections include the following:
 - 1. Division 01 Section "Cutting and Patching" for cutting and patching procedures.

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 Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- C. 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 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 7. Means of protection for items to remain and items in path of waste removal from building.
- B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations.

1.4 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. Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.5 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 or coordinate with Owner so that operations can be planned to accommodate the construction activities.
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.

1.6 WARRANTY

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

3.2 PREPARATION

- A. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

3.3 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 7. Dispose of demolished items and materials promptly.
- B. 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.
 5. Protect items from damage during transport and storage.
- C. 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.
- D. 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.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.5 CLEANING

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

END OF SECTION 024119

SECTION 06 10 05 - ROUGH CARPENTRY FOR ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes all new carpentry, which is required at all perimeter locations, terminations and penetrations to complete the work unless specifically noted otherwise.
- B. All treated / waterproof carpentry shall have underlayment to provide separation with sheet metal.
- C. Repair deck where abandoned penetrations have been removed. Provide insulation to match existing condition and ensure underside of deck at exposed locations match existing conditions.
- D. Removal and replacement of damaged, deteriorated, delaminated or warped existing plywood decking.
- E. Removal of all loose nails / fasteners, replacement with new wood screws and the random addition of fasteners is included.
- F. A set quantity is required for rough carpentry. This quantity is to be included in the Base Bid as listed on the Bid Form. Any quantity above or below the set quantity amount shall result in an add or deduct to the Contract Sum based on the unit price provided.
 - 1. Unless specifically noted otherwise, contractor may assume existing nailers/carpentry can be reused. Any carpentry found to be damaged or deteriorated, shall be replaced based on the quantities listed on the Bid Form.

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 07 22 05: Thermal Insulation for Roofing
- C. Section 07 31 05: Architectural Laminated Shingles
- D. Section 07 53 05: Thermoplastic Alloy (TP) Roofing System Fully Adhered
- E. Section 07 60 05: Sheet Metal for Roofing

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN FOREST & PAPER ASSOCIATION (AF&PA):
 - 1. AFPA T101 (2001) National Design Specification for Wood Construction
- C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE):
 - 1. ASCE 7 (2010) Minimum Design Loads for Buildings and Other Structures
- D. AMERICAN WOOD PRESERVERS BUREAU (AWPB):
 - 1. AWPB LP22-80 - Standard for Softwood Lumber, Timber, and Plywood Pressure Treated with Waterborne Preservatives for Ground Contact Use

E. AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA):

1. AWPA C1 (2003) All Timber Products – Preservative Treatment by Pressure Processes
2. AWPA C2 (2003) Lumber, Timber, Bridge Ties and Mine Ties- Preservative Treatment by Pressure Processes
3. AWPA C9 (2003) Plywood – Preservative Treatment by Pressure Process
4. AWPA M2 (2001) Inspection of Treated Wood Products
5. AWPA M6 (2007) Brands Used on Forest Products

F. APA – THE ENGINEERED WOOD ASSOCIATION (APA):

1. APA E30 (2005) Engineered Wood Construction Guide
2. APA PRP-108 (2002) Performance Standards and Policies
3. APA PS 1 (1995) Voluntary Product Standard for Construction and Industrial Plywood
4. APA PS 2 (2004) Voluntary Product Standard for Wood-Based Structural-Use Panels

G. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

1. ASTM C1396 / C1396M (2011) Standard Specification for Gypsum Board
2. ASTM F 1667 (2003) Driven Fasteners: Nails, Spikes, and Staples

H. FACTORY MUTUAL ENGINEERING AND RESEARCH (FM):

1. FM DS 1-49 (Latest Edition) Perimeter Flashing

I. INTERNATIONAL CODE COUNCIL (ICC):

1. IBC (2009) International Building Code
2. IEBC (2009) International Existing Building Code

J. SOUTHERN PINE INSPECTION BUREAU (SPIB):

1. SPIB 1003 (2002) Southern Pine Inspection Bureau Grading Rules

K. U.S. DEPARTMENT OF COMMERCE (DOC):

1. DOC/NIST PS1 (1995) Construction and Industrial Plywood with Typical APA Trademarks

1.4 SUBMITTALS

- A. Submit the following in accordance with the Submittals section.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.

- C. Certificate of Pressure Treatment
- D. Certificate of Grade
 - 1. Drawing Requirements for rough carpentry indicate materials, details of constructions, methods of fastening, and erection details. Submit drawings for all proposed modifications of structural members. Do not proceed with modifications until the submittal has been approved.
- E. Certificate of fastener types of CA, ACQ or MCQ wood treatment.
- F. Layout Plan for Carpentry
- G. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials to site in an undamaged condition.
- B. Storage: Carefully store materials in enclosed trailer providing proper ventilation, drainage, and protection against dampness.
- C. Handling: Remove defective and damaged materials and provide new materials.
- D. Ensure grade marks are present on all lumber.

1.6 MOISTURE CONTENT

- A. General:
 - 1. Maximum moisture content of 19%.
 - 2. Air or kiln treated lumber after treatment.
- B. Moisture Content:
 - 1. Maximum moisture content of wood products shall be as follows at the time of delivery to the job site and stored properly to eliminate any further exposure.
 - a. All lumber and boards - 19% maximum.
 - b. Materials other than lumber or moisture content shall be in accordance with referenced standard.

1.7 PRESERVATIVE TREATMENT

- A. All lumber and timber shall be treated in accordance with AWPAC1 and AWPAC2 or approved equal. Treatment shall be a minimum .25 for above grade use. This includes nailers, edge strips, crickets, curbs, blocking, and cants for new roofing system.
- B. Equivalent treatment methods / products, such as Alkaline Copper Quaternary (ACQ), Micronized Copper Quaternary (MCQ) or Copper Azole (CA) will be considered under the substitution process. Substitution request must address the proposed fasteners / types that will be used.

- C. Any wood, nailers or other rough carpentry using Copper Azole (CA), Alkaline Copper Quaternary (ACQ) or Micronized Copper Quaternary (MCQ) treatment will require verification of the following:
 - 1. Separation of aluminum/galvalume sheet metal from the roof carpentry.
 - 2. Type of fasteners acceptable for attachment into these woods (such as stainless steel).
 - a. Fasteners for wood to wood connectors.
 - b. Fasteners thru metal into wood.
- D. All wood shall be air or kiln dried after treatment.
- E. Plywood Sheathing – AWP – C1 and AWP C9.

PART 2 - PRODUCTS

2.1 LUMBER

- A. Framing Lumber: Nailers, framing edge strips, crickets, curbs and cants.
- B. Grade of Lumber shall be No. 2 or better.

2.2 PLYWOOD

- A. Plywood to repair existing plywood or used in combination with nailers shall match in thickness and shall be exterior grade and pressure treated material.
- B. Plywood used with nailers shall be sandwiched between nailers.
- C. Plywood for deck replacement shall be a minimum 1/2 inch exterior grade (and match existing thickness). Plywood shall be exterior grade and pressure treated.
- D. Plywood shall conform to DOC PS 1, APA PRP-108 or APA PS 2, Grade C-D or sheathing grade with exterior glue. Sheathing for roof and walls without corner bracing of framing shall have a span rating of 16/0 or greater for supports 16 inches on center and a span rating of 24/0 or greater for supports 24 inches on center.

2.3 FASTENERS

- A. Fasteners shall be compatible with the materials being fastened and shall provide for secure, firm attachment.
- B. Exposed fasteners shall have domed head with integral metal washer and rubber gasket.
- C. Fasteners shall be hot dipped galvanized steel, stainless steel, bronze or copper as a minimum. Wood treatment may require specific type of fasteners.
- D. Only stainless steel fasteners shall be used to connect dissimilar metals.

2.4 ROUGH HARDWARE

- A. Unless otherwise indicated or specified, rough hardware shall be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry, or concrete walls or slabs shall be zinc-coated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Conform to NFP WCD1 unless otherwise indicated or specified.
- B. Fit framing lumber accurately to the required lines and levels to match existing nailers, which shall be removed.
- C. Set nailers with their crown edge up.

3.2 WOOD ROOF NAILERS, EDGE STRIPS, CURBS AND CANTS

- A. General:
 - 1. Provide sizes and configurations to match existing conditions at edge perimeters, curbs, and expansion joints.
 - 2. Thicknesses to match insulation thicknesses and minimum 2 x 6, unless specifically noted otherwise.
 - 3. If multiple layers, attach each layer independently and minimum 1 1/2 inch thickness at top, when applicable.
- B. Raise all penetrations a minimum of 8 inches above the finished roof.
- C. Wood Blocking Attachment
 - 1. Concrete Substrate
 - a. A minimum 1/2 inch diameter anchor bolt with minimum 1 inch diameter washer properly embedded into structural concrete and recessed into wood blocking.
 - b. Anchors should be staggered if blocking is wider than 6 inches.
 - c. Anchors should be not more than 48 inches on center and no less than three (3) anchors per 8 feet section of carpentry. At corners reduced to 24 inches on center.
 - 2. Steel Substrate
 - a. A minimum 3/4 inch diameter bolt tapped into a structural member or into bar joists between 48 inches on center.
 - b. Attachment to metal deck requires #12 fastener 12 inches on center and 6 inches on center at corners.
 - c. The corner shall be defined as a minimum of 10 feet and increased based on ASCE 7 guidelines.
 - d. This may require attachment to structural framing.
 - 3. If other substrate/edge conditions exist, the Contractor shall provide attachment to resist 250 pounds per square linear foot in all directions and increased by 100% at corners.

- a. The corner shall be defined as a minimum of 10 feet and increased based on ASCE 7 guidelines.
- b. This may require attachment to structural framing.

D. Nailers/Fasteners

1. A 1/4 inch gap between nailers is required.
2. Pre-drilled holes for attachment.
3. Nails used to secure multiple nailers should be long enough to penetrate the base wood blocking 1 1/4 inch. A fastener shall be placed 3 inches from each end and double rows spaced 24 inches on center and staggered is required.
4. Joints in nailers shall be staggered in multiple layer applications and shall have interlocked corners.
5. Nails should be installed at angles.
6. Nailers used to raise curbs of mechanical units, skylights and other penetrations shall be installed level.

E. Nailer Configurations

1. Match nailer thicknesses with insulation thicknesses including tapered insulation.
2. Stack nailers with joints staggered and plywood sandwiched between nailers.
3. Contractor may elect to build a 'box' configuration or 'stud wall' assembly with voids filled with insulation in lieu of a 'stacked' configuration.

3.3 PLYWOOD SHEATHING INSTALLATION

- A. Install with the grain of the outer piles or long dimension at right angles to supports. Stagger end joints and locate over the centerlines of supports. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges. Install H clips 12 inches on center, on all sides. Nail panels securely with 8-penny common nails or 6-penny annular rings or screw-type nails spaced 6 inches on center at supported edges and 12 inches on center at intermediate bearings.

3.4 UNIT PRICED QUANTITIES

- A. Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 06 10 05

SECTION 07 22 05 - THERMAL INSULATION FOR ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the installation of thermal and tapered insulation as required or necessary for complete roof replacement of Roof Area A.
- B. Based on the deck type, the following is required: field, perimeter and corners will be defined in accordance with FM requirements.
 - 1. Plywood Decking: Apply a sheet of rosin paper over deck. Attachment to adhere to FM-1A-135 requirements with required increases at perimeters and corners.
 - 2. Fasteners shall adhere to all other fastener requirements listed in FM Loss Prevention Data Sheets.
- C. A minimum R-value of 20 is required in accordance with ASHRAE 90.1, 2007.
 - 1. First layer of insulation shall be a 1.5 inch thick polyisocyanurate.
 - 2. The second and succeeding layers shall be polyisocyanurate with joints staggered with base layer.
 - 3. The top layer shall be a minimum 1/4 inch glass matt gypsum board similar to Densdeck or SecureRock, mechanically attached thru all layers of insulation to the existing roof deck.
- D. For Roof Area A, the primary slope shall be provided using a tapered insulation system. Taper shall be installed over the first layer of base insulation, and shall have a minimum 1/8 inch per foot tapered slope. The minimum start thickness of the tapered board shall be 1/2 inch and coordinated with Section 06 10 05, Rough Carpentry for Roofing to ensure a flush fit with nailers. Filler boards shall be a minimum 1.5 inch thick where polyisocyanurate insulation is used.
- E. Secondary slope (crickets / saddles / sumps) shall be fabricated with polyisocyanurate insulation, with a maximum 1/2 inch thick start thickness and tapered edge strips added and provide a minimum finished slope of 1/4 inch per foot.
- F. Positive drainage is required at all locations of the roof to prevent ponding of water.
- G. Insulation thickness shall match nailer thicknesses and adjacent boards within a 1/4 inch tolerance in all directions.

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 06 10 05: Rough Carpentry for Roofing
- C. Section 07 53 05: Thermoplastic Alloy (TP) Roofing System Fully Adhered

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.

B. AMERICAN SOCIETY FOR CIVIL ENGINEERS (ASCE):

1. ASCE 7 (2005) Minimum Design Loads for Buildings and Other Structures

C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

1. ASTM C 1177 / C 1177M (2008) Glass Mat Gypsum Substrate for Use as Sheathing
2. ASTM C 1289 (2011) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
3. ASTM C 1303 / 1303 M (2010) Test Method for Predicting Long-Term Thermal Resistance of Closed-Cell Foam Insulation
4. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
5. ASTM D 3273 (2005) Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
6. ASTM E 84 (2011) Standard Test Method for Surface Burning Characteristics of Building Materials
7. ASTM E 136 (2011) Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C

D. FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM):

1. FM P9513 (Latest Edition) Loss Prevention Data for Roofing Contractors
2. FM7825a (Latest Edition) Approval Guide Fire Protection
3. FM P7825c (Latest Edition) Approval Guide Building Materials

E. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):

1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
2. NRCA/ARMA/SPRI Repair Manual for Low Sloped Roof Systems.

F. UNDERWRITERS LABORATORIES, INC. (UL):

1. UL BMD (Latest Edition) - Building Materials Directory

G. INTERNATIONAL CODE COUNCIL (IBC):

1. IBC (2009) International Building Code
2. IEBC (2009) International Existing Building Code

1.4 SUBMITTALS

- A. Submit the following in accordance with the Submittals section.

- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Manufacturer's Catalog Data
 - 1. Fasteners
 - 2. Roof Insulation: Include fastener pattern for insulation on wood decks.
- D. Drawings
 - 1. Wood Nailers
 - a. Show location and spacing of wood nailers that are required for securing insulation and for backnailing of roofing felts.
 - 2. Coordinate requirements of Section 06 10 05, Rough Carpentry for Roofing, Shop Drawings Requirements
 - 3. Tapered Roof Insulation System
 - a. Show a complete description of the procedures for the installation of each phase of the system indicating the type of materials, thicknesses, identify codes, sequence of laying insulation, location of ridges and valleys, special methods for cutting and fitting of insulation and special precautions.
 - b. Provide the average R-value calculations for each roof area.
 - c. Indicate calculation method used (arithmetic or volumetric) on plans.
 - d. The drawings shall be based on field measurements provided by the Contractor.
- E. Instructions
 - 1. Nails and fasteners
 - 2. Roof insulation
 - 3. Unless otherwise indicated on the contract drawings, show the attachment patterns at field, perimeter and corners with roof plan showing areas.
- F. Statements
 - 1. Installer Qualifications
 - a. Requirement: Submit certificate from the insulation manufacturer attesting that the installer has the proper qualifications for installing tapered roof insulation systems.
- G. Test Reports
 - 1. Wind and Fire ratings/classifications.
- H. Data:
 - 1. Manufacturer's Certificate of Conformance and Catalog Data will be required for each type of insulation and other material proposed for use, cricket and tapered insulation layout from the insulation manufacturer, and shall include printed application instructions, detailed fastening instructions and other details, as appropriate.

I. Samples:

1. One sample of each type of insulation shall be approved before materials are delivered to the work site.
2. Samples shall accompany other applicable documentation specified herein above.

J. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.

1.5 FIRE AND WIND CLASSIFICATION

- A. Coordinate insulation and roof membrane to ensure the assembly / system meets the fire and wind requirements.
- B. Insulation shall have been tested as part of a roof construction assembly of the type used in this project, and the construction assembly listed as Fire Classified in UL Directory or Class I in FM Directory.
- C. Assembly shall meet the applicable rating/classifications requirements of the International Building Code.
- D. Coordinate with requirements of roof membrane specification.
- E. Fire Safety: All materials and systems shall meet the fire rating required by the International Building Code.

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery

1. Deliver materials to site in manufacturer's unopened and undamaged standard commercial containers bearing the following legible information:
 - a. Name of manufacturer;
 - b. Brand designation;
 - c. Specification number, type and class, as applicable, where materials are covered by a referenced specification; and
2. Deliver materials in sufficient quantity to allow continuity of the work.

B. Storage and Handling

1. Store and handle materials in a manner to protect from damage, exposure to open flame or other ignition sources and from wetting and moisture absorption. Any materials which are exposed to moisture shall be immediately removed from the site.
2. Adhere to manufacturer's requirements for removal of manufacturer's shipping wraps.
3. Materials which are permitted to be stored outside shall be on pallets covered with breathable tarps and secured from inclement weather.
4. As a minimum, perlite, fiberboard and all roll goods shall be stored in an enclosed building or trailer that provides a dry, adequately ventilated environment.
5. Any material exposed to moisture or inclement weather and any damaged materials shall be removed from site immediately and replaced with new materials.

1.7 ENVIRONMENTAL CONDITIONS

- A. Do not install roof insulation during inclement weather or when air temperature is below 40 degrees F or when there is ice, frost, or moisture visible on the roof deck.

1.8 CONTROL OF FUMES/ODORS

- A. Control of fumes/odors:
 - 1. Use of low VOC products shall be utilized during construction when possible.
 - 2. Air intakes, vents, etc. shall be shut off, closed or blocked when fumes or odors are possible which may impact the owner/occupants. Coordinate work of their nature with owner/occupant and Consultant/Engineer prior to performing work.

1.9 WARRANTY

- A. Roof insulation shall be included in the roof system warranty.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Roof Insulation: The following materials meeting the respective requirements, used as specified or required:
 - 1. Polyisocyanurate:
 - a. ASTM C1289, Type II, Class I or II, grade II or III.
 - 1) Maximum size for fully adhered application is 4' x 4'.
 - 2) Maximum size for mechanically fastened application is 4' x 8'.
 - 2. Tapered Roof Insulation:
 - a. Polyisocyanurate: ASTM C 1289, Type II, Class I or II, Grade II or III.
 - 3. Glass Mat Gypsum Roof Board:
 - a. Meets ASTM C 1177. Non-combustible moisture-resistant core with glass fiber mat embedded into the face and back. Flame spread 0, smoke developed 0, as per ASTM E 84, non-combustible per ASTM E 136, meets UL Class A, no mold or mildew growth per ASTM D 3273, compressive strength greater than 500 psi, suitable component for enhanced fire, wind, strength characteristics.
- B. Other Materials
 - 1. Paper Slip Sheet:
 - a. Minimum 4 lb., red rosin-sized building paper.
 - 2. Wood Nailers:
 - a. Nailers for retaining insulation on non-nailable decks and for nailing of roofing felts, are specified under Section 06 10 05, Rough Carpentry for Roofing and the same thickness as the insulation in all locations.

3. Crickets and Tapered Edge Strips:

- a. Fabricated of the same material as the insulation or rigid perlite board, ASTM C 728.

C. Fasteners

1. General:

- a. Flush-driven through flat round or hexagonal steel or plastic plates.
- b. Steel plates shall be zinc-coated, flat round not less than 1 3/8-inch diameter or hexagonal not less than 28 gage.
- c. Plastic plates shall be high-density, molded thermoplastic with smooth top surface, reinforcing ribs and not less than 3 inches in diameter.
- d. Fastener head shall recess fully into the plastic plate after it is driven.
- e. Plates shall be formed to prevent dishing.
- f. Do not use bell-or cup-shaped plates.

2. When equivalent treatment methods / products, such as Alkaline Copper Quaternary (ACQ), Micronized Copper Quaternary (MCQ) or Copper Azole (CA) are used for wood substrates, the proposed fasteners / types must be compatible with these treatments.

3. Roofing Nails for Wood Substrates

- a. Barbed 11-gage, zinc-coated nails with 7/16 to 5/8-inch diameter heads or annular ring shank, square head, one-piece composite nails.
- b. Nails shall be long enough to penetrate wood deck at least 5/8-inch but shall not protrude through underside of decking.

4. Fasteners for Plywood Substrates

- a. Annular ring shank, square head, one-piece composite nails long enough to penetrate into plywood decks approximately 1/2-inch, but not protrude through underside of decking.

5. Fasteners for Steel / Metal Substrates

- a. Approved hardened penetrating fasteners or screws conforming to FM A/S4470 and listed in FM P7825 for Class I roof deck construction.
- b. Fasteners shall be specifically designed and approved by roof system manufacturer for deck type.
- c. Quantity and placement to adhere to specified requirements.

6. Fasteners for Poured Concrete Substrates

- a. Approved hardened fasteners or screws to penetrate deck at least one inch but not more than 1-1/2-inches, conforming to FM A/S4470, and listed in FM P7825 for Class I roof deck construction.

- b. Fasteners shall be specifically designed and approved by roof system manufacturer for deck type.
- c. Quantity and placement to adhere to specified requirements.

PART 3 - EXECUTION

3.1 COORDINATION REQUIREMENTS

- A. Insulation and complete roofing membrane shall be finished in one operation up to the line of termination at the end of each day's work. Phased construction will not be permitted.

3.2 PREPARATION OF SURFACES

A. General

- 1. All surfaces on which insulation are to be applied shall be clean, smooth, dry, and free of projections.
- 2. The condition of the surfaces shall be inspected and approved immediately before the work is begun.

B. Surface Inspection

- 1. Surfaces shall be clean, smooth and dry.
- 2. Check roof deck surfaces for defects before starting work.
 - a. Any variations greater than 1/4 inch shall be addressed per the applicable deck repair section or if not included, shall be brought to the attention of the Consultant/Engineer immediately.
- 3. The Contractor shall inspect and approve the surfaces immediately before starting installation.
- 4. Prior to installing insulation, perform the following:
 - a. Provide an underlayment/rosin paper over the plywood deck.
 - b. Examine wood substrates to ascertain that deck has been properly nailed and that exposed nail heads have been set.
 - 1) See Section 06 10 05, Rough Carpentry for Roofing.

C. Surface Preparation

- 1. Correct defects and inaccuracies in roof deck surface to eliminate poor drainage and hollow or low spots and perform the following:
 - a. Install wood nailers the same thickness as insulation at eaves, edges, curbs, walls and roof openings for securing cant strips, gravel stops, gutters and flashing flanges.
 - b. On decks with slopes of one inch per foot or more, install wood nailers perpendicular to slope for securing insulation and for backnailing of roofing felts.
 - c. Space nailers in accordance with approved shop drawings.

2. Wood Decks/Substrates:

- a. Cover wood substrates with a layer of rosin-sized building paper and fiberglass base sheet.
- b. Lap sides and ends not less than 3 inches.
- c. Nail sufficiently to prevent tearing or buckling during installation.
- d. Application of base sheet per NRCA and applicable FM criteria.

3.3 INSTALLATION

A. Roof Deck Surfaces

1. The application of roof insulation will not be permitted on roof decks when the temperature is below 40 degrees F or when there is ice, frost, or dampness visible on the roof deck.
2. All roof deck surfaces shall be as required and approved by the manufacturer before the installation of any insulation; all defects and inaccuracies in the roof deck surface shall be corrected in a satisfactory manner so as to eliminate poor drainage, hollows, and low spots.

B. Insulation

1. All roof insulating materials shall be kept dry before, during and after installation.
2. Apply insulation in layers required with staggered joints when total required thickness of insulation exceeds 2 inches.
3. Lay insulation so that continuous longitudinal joints are perpendicular to direction of roofing, as specified in the roof membrane section and end joints of each course are staggered with those of adjoining courses.
4. When using multiple layers of insulation, joints of each succeeding layer shall be parallel and offset in both directions with respect to layer below.
5. Keep insulation 1/2-inch clear of vertical surfaces penetrating and projecting from roof surface.
6. For mechanically fastened applications, ensure boards are fit, edges supported on the bearing surface and mechanically fastened in accordance with the Factory Mutual criteria.

C. Tapered Roof Insulation

1. A factory tapered system shall be provided to attain a primary slope as shown on taper drawings and not less than 1/8-inch per foot and secondary slope at 1/4 inch per foot.
2. Provide starter and filler blocks as required to provide the total thickness of insulation necessary to meet the specified slope and thermal conductance.
3. Mitered joints shall be factory fabricated and shall consist of two diagonally cut boards or one board shaped to provide the required slopes.
4. Identify each piece of tapered insulation board by color or other identity coding system, allowing the identification of different sizes of tapered insulation board required to complete the roof insulation system.

5. Four feet (4') x four feet (4') tapered insulation sumps required at all roof drain locations.
6. At the drainage locations, ensure insulation tapers up from the roof drain to a minimum 1/4"/1' and a maximum 1 1/2". Provide tapered filler to match field insulation thicknesses. Do not provide tapered sump at overflow drains/outlets.
7. At crickets, saddles and sumps including tapered cricket on the high side of all non-round penetrations which are 24 inches or greater. Finished slope shall be equal to the primary roof slope.

D. Tapered Edge Strips

1. Where indicated, provide edge strips in the right angle formed by junction of roof and wood nailing strips that extend above level of roof.
2. Install edge strips flush against vertical surfaces of wood nailing strips.
3. Where possible, nail edge strips to adjoining surfaces.
4. Where tapered edge strips are installed against non-nailable materials, install in heavy mopping of asphalt or set in a heavy coating of asphalt roof cement, or an approved adhesive.
5. Provide tapered edge strips at start of crickets where start thicknesses is greater than 1/4".

3.4 PROTECTION

A. Protection of Applied Insulation

1. Completely cover each day's installation of insulation with the finished roofing specified in the applicable roof membrane section on same day.
2. Do not permit phased construction.
3. Protect open ends of each day's work with temporary water cut-offs and remove when work is resumed. Ensure insulation joints are staggered at these locations. Tie off area/water cut offs shall be entirely sealed, checked and made watertight at the end of each day's work.
4. Protect open spaces between insulation and parapets or other walls and spaces at curbs, scuttles and expansion joints, until permanent roofing and flashing are applied.
5. Do not permit storing, walking, wheeling or trucking directly on insulation or on roofed surfaces.
6. Provide smooth, clean board or plank walkways, runways and platforms near supports, as necessary, to distribute weight to conform to indicated live load limits of roof construction.

B. Damaged Work and Materials

1. Restore work and materials that become damaged during construction to original condition or replace with new materials.

END OF SECTION 07 22 05

INTENTIONAL BLANK PAGE

SECTION 07 31 05 - ARCHITECTURAL LAMINATED SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the work for Alternate number 1 which covers the complete roof replacement of all areas of shingle roof systems on Roof Area B as indicated on drawings.
- B. Removal of all existing asphalt shingles, underlayment, components and accessories down to the deck and the installation of new asphalt fiberglass shingles, felt underlayment system and all accessories, including all new flashings, metal drip edge, and new ridge vents.
- C. Wood decking replacement and resecurement and repair requirements are addressed in Section 06 10 05, Rough Carpentry for Roofing.
- D. Underlayment system includes waterproof underlayment at all critical areas, i.e. valleys, crickets, eaves, rakes, penetrations, etc.
- E. A set quantity is required for architectural laminated shingles work. This quantity is to be included in the Base Bid as listed on the Bid Form. Any quantity above or below the set quantity amount shall result in an add or deduct to the Contract Sum based on the unit price provided.

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 06 10 05: Rough Carpentry for Roofing
- C. Section 07 60 05: Sheet Metal for Roofing

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM):
 - 1. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
 - 2. ASTM D 226 (2006) Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
 - 3. ASTM D 3018 (2003) Class A Asphalt Shingles Surfaced With Mineral Granules
 - 4. ASTM D 3161 (2006) Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)
 - 5. ASTM D 3462 (2005) Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules
 - 6. ASTM D 4586 (2007) Standard Specification for Asphalt Roof Cement, Asbestos-Free

7. ASTM D 4869 (2004) Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing
 8. ASTM D 6381 (2003) Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance
 9. ASTM D 7158 (2007) Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)
- C. INTERNATIONAL CODE COUNCIL (ICC):
1. IBC (2009) International Building Code
 2. IEBC (2009) International Existing Building Code
- D. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA):
1. NRCA Roofing and Waterproofing Manual, Fifth Edition. Steep Roofing Section.
 2. Residential Roofing Materials Guide, Latest Edition
- E. ASPHALT ROOFING MANUFACTURER'S ASSOCIATION (ARMA):
1. Residential Asphalt Roofing Manual
- F. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
1. ANSI / UYL 2390 Test Method for the Wind Resistance of Asphalt Shingles with Sealed Tabs.
- G. UNDERWRITERS LABORATORIES (UL):
1. UL 790 (Latest Edition) Test for Fire Resistance of Roof Covering Material, Latest Edition.
 2. UL 997 (Latest Edition) Wind Resistance of Prepared Roof Covering Material, Latest Edition.

1.4 SUBMITTALS

- A. Submit the following in accordance with the Submittals section.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Manufacturer's literature to include shingle, underlayment, and ridge vent application instructions.
- D. Product data for each type of product specified, including actual weights of products, details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
- E. Samples for initial selection in the form of manufacturer's sample finishes showing full range of colors and profiles available for each type of asphalt shingle indicated.
- F. Samples for verification in the form of 2 full-size units of each type of asphalt shingle indicated showing the full range of variations expected in these characteristics.

- G. Certificate of Compliance: Certify that materials are physically and chemically compatible with each other; that materials are in conformance with requirements of this specification section and that each material is suitable for the intended purpose.
1. Underlayment System
 2. Fasteners
 3. Roof Cement
 4. Shingles
 5. Ridge Vents
 6. Hip and Ridge Caps
 7. Starter Strip
- H. Information Card(s)
1. For each assembly, submit a photocopy or typewritten information card containing the information as listed at the end of this section.
- I. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.

1.5 QUALITY ASSURANCE

- A. Qualifications of Applicator
1. Roofing system applicator shall be approved in writing by the roofing system manufacturer and shall have a minimum of five years experience as an approved applicator with the manufacturer.
 2. Contractor shall be a certified/approved to provide the required warranty.
 3. Applicator shall also have applied 5 installations of similar size and scope as this project, within the previous 3 years.
- B. Fire-Test-Response Classification: Where products with a fire-test-response classification are specified, provide asphalt shingles identical to those tested according to ASTM E 108 or UL 790 and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify each bundle of asphalt shingles with appropriate markings indicating fire-test-response classification of applicable testing and inspecting agency.
- C. Wind-Resistance-Test Characteristics: Where wind-resistant asphalt shingles are indicated, provide products identical to those tested according to the referenced standards. Identify each bundle of asphalt shingles with appropriate markings of applicable testing and inspecting agency.
- D. Mockup: Prior to installing shingles, construct mockups to verify selections made under sample submittals and to demonstrate aesthetic effects as well as quality of materials and execution. Build mockups to comply with the following requirements, using material indicated for final Work.
1. Locate mockups on site in the location and of the size indicated or, if not indicated, as directed by Architect/Consultant.

2. Demonstrate the proposed range of aesthetic effects and workmanship.
3. Obtain Architect/Consultant's approval of mockups before start of final unit of Work.
 - a. Accepted mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.6 PRE-CONSTRUCTION CONFERENCE

- A. Before roofing work, including associated work, is performed, the Consultant/Engineer will hold a Pre-Construction Conference to review the following:
 1. The drawings and specifications.
 2. Procedure for on-site inspection and acceptance of the roofing substrate and pertinent structural details relating to the roofing system.
 3. Contractor's plan for coordination of the work of the various trades involved in providing the roofing system and other components secured to the roofing.
 4. Safety Requirements.
- B. The Pre-Construction Conference shall be attended by the Contractor and personnel directly responsible for the installation of roofing, flashing and sheet metal work , a representative of the roofing materials manufacturer, and all related subcontractors. Conflicts among those attending the Pre-Construction Conference shall be resolved and confirmed in writing before roofing work including associated work, is begun.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in an undamaged condition. Carefully store materials with tarp covers providing proper ventilation, drainage, and protection against dampness. Remove defective and damaged materials and provide new materials.
- B. Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.
- C. Handle and store materials at Project site to prevent water damage, staining, or other physical damage. Store roll goods on end. Comply with manufacturer's recommendations and warranty requirements.
- D. Do not over stack bundles.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing asphalt shingles only when the current and forecasted weather conditions will permit work to be performed according to manufacturers' recommendations and warranty requirements, and when substrate is completely dry.

1.9 DIFFERING SITE CONDITIONS

- A. The contractor will notify the Consultant/Engineer immediately of any unforeseen site conditions. The contractor will be required to secure the job site and "dry-in" the roofing system until the problem is resolved.

1.10 WARRANTY

- A. Contractor and manufacturer warranties shall be exclusive and independent of each other. Each warranty shall be issued directly to the Owner and dated as noted below.
- B. Furnish the Three-Year Contractor Warranty as provided at the end of this section. The warranty period shall be not less than 3 years from the date of substantial completion.
 - 1. If the Contractor fails to perform repairs within 72 hours of written notification, the warranty will not be voided because of work being performed by others to repair deficiencies/failures regardless of manufacturer's warranty to the contrary.
- C. Manufacturer's Warranty
 - 1. Provide shingle manufacturer's minimum forty (40) year materials warranty to include minimum ten (10) years fungus resistance warranty coverage. Provide a minimum 110 mph wind warranty coverage.
 - 2. Submit a written warranty signed by manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of asphalt shingles beyond normal weathering.

1.11 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.
 - 1. Furnish a minimum 1 square coverage of asphalt shingles for every 50 squares of roofing, identical to those to be installed, in unbroken bundles. Minimum of 1 square shall be provided to Owner regardless of roof size.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLES

- A. Colors, Blends, and Patterns: Where manufacturer's standard products are indicated, provide asphalt shingles with the following requirements:
 - 1. Match colors, textures, and patterns indicated by referencing manufacturer's standard designations for these characteristics.
- B. Architectural Laminated Fiberglass Shingles
 - 1. Mineral surfaced, self sealing, fungus resistant shingles:
 - a. Meet or exceed ASTM D 3018 Type I.
 - b. Meet or exceed ASTM D3161, Type I.
 - c. Meet or exceed wind resistance requirements of UL 997.
 - d. Meet or exceed ASTM D 3462.
 - e. Shingles shall meet or exceed ASTM D 7158.
 - 1) Class H for use in 150 mph wind zones.

- f. U.S Standard sizes shall be used.
 - g. UL Class A external fire exposure in accordance with UL 790.
 - h. Hip and ridge manufacturer's standard factory precut units to match shingles.
- C. Product lines which have shingles that meet the above requirements include the following:
 - 1. GAF, Timberline Ultra HD or Timberline Cool Series.
 - 2. Owens Corning, Duration Premium.
 - 3. CertainTeed, Landmark Pro or Landmark Premium.
 - 4. Tamko Heritage Premium.

2.2 UNDERLAYMENT SYSTEM

- A. No. 30, non-perforated, asphalt organic felt underlayment, meeting ASTM D 226, Type II or ASTM D 4869, Type IV.
- B. At all critical locations (valleys, crickets, wall intersections, slope changes, penetrations, eaves and rakes): Smooth surfaced, self-adhering, polymer-modified, Bitumen Waterproofing Membrane, ASTM D 1970 / D 1970 M.

2.3 ACCESSORIES

- A. Vent Pipe Flashings: Lead boots, minimum 4 lb., to fit pipe sizes, unless approved otherwise.
- B. Nails: Aluminum or hot-dip galvanized steel, 0.120-inch-diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum 3/8-inch-diameter head and of sufficient length to penetrate 3/4 inch into solid decking or at least 1/8 inch through plywood sheathing. Fastener shall be a minimum 1 1/4" length for shingles and a minimum 2" length for hips and ridges except where required longer by the shingle vent/ ridge cap manufacturer.
 - 1. See requirements in Section 06 10 00, Rough Carpentry, for fasteners based on preservative treatment.
 - 2. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.
- C. Ridge Vent Manufacturers Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Ridge Vents: Shingle over baffled high-density polypropylene, non-woven modified polyester, or other UV-stabilized plastic designed to be installed under asphalt shingles at ridge. Contractor shall use the vent manufacturer's recommended nailing pattern and fastener length, except a minimum 2 1/2-inch fastener, secured 12-inch on center each side, is required.
 - 2. Products which meet the above requirements include the following. Where specific shingle manufacturer's require a specific shingle vent type and manufacturer not listed below, a substitution request is required.
 - a. Owens Corning, VentSure.

- b. Air Vent, Inc., VenturiVent Plus and ShingleVent II.
- c. Mid-America Building Corporation, RidgeMaster Plus and HipMaster.

D. Roof Cement/Mastic: ASTM D 4586.

2.4 METAL TRIM AND FLASHING

- A. Sheet Metal Materials: Furnish the following sheet metal materials per Section 07 60 05, Sheet Metal for Roofing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove entire shingle system, including underlayment, flashing and accessories, down to wood deck, as specified in Section 02 05 00, Demolition and Removal.
- B. Drive any remaining nails or staples flush with deck surface.
- C. Inspect decking for rot or damage. Replace rotten or otherwise deteriorated decking materials that are unsuitable to receive overlayment sheathing in accordance with Section 06 10 05, Rough Carpentry for Roofing. Replace all rotten, damaged or deteriorated materials within 12 inches of rakes and eaves.
- D. Secure inadequately attached decking in accordance with Section 06 10 05, Rough Carpentry for Roofing.
- E. Remove sections of existing siding and trim materials, as necessary, to install underlayment and flashing materials, unless approved otherwise. Reinstall removed siding and trim materials upon completion of work. Replace damaged materials with new to match existing.
- F. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with non-corrosive roofing nails.
- G. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.
- H. Modify and/or cut existing plywood termination at ridge conditions to provide for ridge ventilation.

3.3 APPLICATION

- A. Apply roofing materials as specified herein unless approved otherwise and substantiated by shingle manufacturer's written instructions.
- B. Felt / Membrane Underlayment System – Exposure of underlayments shall not exceed 30 days, and all wrinkles, tears or other damages shall be repaired prior to shingle application.

1. For slopes 4:12 and greater:
 - a. Waterproof Underlayment: Apply waterproof underlayment at roof penetrations, eaves, valleys, crickets, hips and ridges. Cover deck from eaves to at least 36 inches inside exterior wall lines.
 - b. Install one-ply of No. 30 felt to the sheathing. Lay underlayment parallel to roof eaves and lapped as indicated. Turn underlayment up wall surfaces a minimum of four (4) inches. Nail sufficient to hold in place until shingles are installed.
 - c. Felt Underlayment: Apply 1 layer of felt underlayment horizontally over entire surface to receive asphalt shingles, lapping courses a minimum of 2 inches, end laps a minimum of 4 inches, and hips and valleys a minimum of 6 inches. Fasten felt with sufficient number of roofing nails and non-corrosive staples to hold underlayment in place, but not more than 36 inches on center along side laps, until asphalt shingle installation. Stagger end laps a minimum of 3 feet apart from adjacent end laps.
 - d. Extend felt underlayment over areas of waterproof underlayment. Lap felt underlayment over waterproof underlayment as recommended by manufacturer but not less than 4 inches.

C. Drip Edge

1. Unless specified in Section 07 60 05, Sheet Metal for Roofing, install metal drip edge under underlayment material at eaves and over underlayment at rakes. Secure attachment flange at 4 inches to 8 inches on center and stagger.
2. Metal drip edge shall have minimum 6" flange, with 2 1/2" face, including a 1/2" hemmed edge.
3. Edge metal shall fully nest at laps.

3.4 SHINGLE INSTALLATION

- A. Application shall be in strict accordance with specified requirements, approved manufacturer's printed instructions, and with the National Roofing Contractor's Association (NRCA) printed recommendations. Comply with manufacturer's instructions and recommendations but not less than those recommended by ARMA's "Residential Asphalt Roofing Manual" or "The NRCA Steep Roof Manual."
- B. Install asphalt shingles in a diagonal fashion to prevent patterning. Racking, or straight-up application is prohibited. Butt ends of shingles shall not align vertically more often than every fifth course.
- C. Install starter shingle course along eave, consisting of manufactured starter strip shingles or a full shingle of equal quality as shingles to be installed with lower tab section removed, so that sealer strip is along low edge of roof. Overhang eave 1/4 inch to 3/8 inch.
- D. Apply and attach shingles in accordance with the shingle manufacturer's printed and approved instructions for the slope conditions to which the shingles are installed, except that all shingles shall be attached with minimum six nails.
 1. Use chalk lines approximately every 10 courses maximum to keep horizontal lines straight.
 2. Use vertical chalk lines to ensure proper tab alignment.
- E. Use caution with excess materials. Avoid throwing scraps, debris and nails on ground and in bushes into unprotected areas. Daily cleanup of debris is required.

- F. Nail attachment is required. Staples are prohibited.
 - 1. Fasten asphalt shingles to roof substrate with nails.
- G. Underlayment at Closed Valleys: Center a 36-inch-wide waterproof underlayment in valley and secure with only enough nails to hold in place until asphalt shingles are installed. Lap roof underlayment over valley underlayment at least 6 inches.
- H. Flashing: Install metal flashing and trim as specified in Section 07 60 05, Sheet Metal for Roofing, and according to details. Any clarifications shall be in accordance with "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Asphalt Roofing Manual."
- I. Install asphalt shingles, beginning at roof's lower edge, with a starter strip of asphalt shingles with tabs removed. Fasten shingles in pattern, with weather exposure, and using six (6) fasteners per shingle, unless more fasteners are recommended otherwise by manufacturer for wind uplift requirements. Use vertical and horizontal chalk lines or pre-marked underlayment to ensure straight coursing.
 - 1. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
 - 2. Use fasteners at ridges of sufficient length to penetrate sheathing as specified.
 - 3. Pattern: 1/3 shingle spacing offset at succeeding courses.
- J. Ridge Vents: Install ridge vents at all ridge locations according to the specific manufacturer's instructions.

3.5 ADJUSTING

- A. Replace any damaged materials installed under this Section with new materials that meet specified requirements.

3.6 VALLEY

- A. Closed-Cut Valleys: Comply with ARMA and NRCA recommendations.
- B. Open Valley: Comply with ARMA and NRCA recommendations.

3.7 FLASHING

- A. Step Flashing
 - 1. For sloping roofs, which abut vertical surfaces, provide metal step flashing as indicated and specified in Section 07 60 05, Sheet Metal for Roofing.
- B. Vent Pipe Installation
 - 1. Apply shingles up to vent pipe or ventilator. Cut hole in shingle slightly larger than penetration.
 - 2. Place preformed lead boot flashing flange over pipe and flat onto shingle. Set flange in thin layer of roof cement. Bend lead down inside pipe minimum one inch.

3. Resume shingling. Cut shingles in successive courses to fit around pipe and embed them in thin layer of roof cement where they overlap the flange. Do not drive fasteners close to pipe.

C. Ridge Vent

1. Saw-cut existing decking back one inch on each side of ridge to provide for air venting. Stop cut approximately four (4) feet short of roof edges and ridge penetrations.
2. Apply ridge vent in strict accordance with the manufacturers printed instructions except that base shall be set over bead of gun-grade roof cement applied in a line along line of vent nailing locations. Bead of cement shall be concealed under vent base.
3. Nails shall penetrate minimum one inch into decking. Nail lengths shall be as specified.
4. Install ridge shingles over ridge vent. Nail securely in accordance with ridge vent manufacturer instructions. Nail lengths shall be as specified.

D. Ventilators and Sheet Metal Vents

1. Unless specifically noted otherwise, provide all new ventilators and sheet metal vents to match existing to be removed. Attach securely and flash similar to specified vent pipe penetration methods setting exposed flanges in bed of roof cement.

3.8 INFORMATION CARD(S)

- A. Install a photoengraved or etched aluminum information card (for exterior display) at location to be determined by Consultant/Engineer. Information listed on the Information Card is located at the end of this section
- B. A card shall be provided for each differing assembly and be a minimum size of 8-1/2 by 11 inches.
- C. Secure with removable stainless steel screws at approved location.
- D. A hard copy of each card is required in the Close-Out Documents.

3.9 CLEAN UP

- A. Clean nails and debris from job site daily with specific attention to entryways, sidewalks, drives and parking areas.
- B. Check area for loose nails and scrap on a daily basis.

END OF SECTION 07 31 05

ARCHITECTURAL ASPHALT SHINGLES INFORMATION CARD

1. Contract Number: _____
 2. Building Number and Location: _____
 3. Deck: _____
 - a. Type: _____
 - b. Slope: _____
 4. Shingle:
 - a. Type: _____
 - b. Size/Location: _____
 - c. Fastener: _____
 - d. Color: _____
 - e. Manufacturer: _____
 5. Underlayment System:
 1. Felt Underlayment:
 - a. Type: _____
 - b. Weight: _____
 - c. Manufacturer (Name / Address / Phone No.): _____
 2. Waterproof Underlayment:
 - a. Type: _____
 - b. Weight: _____
 - c. Manufacturer (Name / Address / Phone No.): _____
 6. Roof Cement:
 - a. Type: _____
 - b. Quantity/Square: _____
 - c. Manufacturer: _____
 7. Flashing:
 - a. Type: _____
 - b. Weight or Gage: _____
 - c. Manufacturer: _____
 8. Statement of Compliance or Exceptions: _____
 9. Date Roof Completed: _____
 10. Warranty Period: Contractor: _____ Manufacturer: _____
 11. Roofing Contractor (Name / Address / Phone No.): _____
 12. Prime Contractor (Name / Address / Phone No.): _____
- Contractor's Signature: _____ Date: _____

ARCHTECTURAL LAMINATED SHINGLES ROOFING WARRANTY

WHEREAS, _____ of

(Address) _____

_____, Telephone: _____ herein called the "Roofing Contractor", has performed architectural laminated shingles roofing work on the following project:

Owner: _____

Address: _____

_____, Telephone: _____

Name and Type of Building: _____

Address: _____

Area of Work: _____

Date of Acceptance: _____

Guarantee Period: Three Years Date of Expiration: _____

AND WHEREAS, the Roofing Contractor has contracted to warrant said work against leaks and faulty or defective materials and workmanship for the designated Guarantee Period; NOW, THEREFORE, the Roofing Contractor hereby warrants, subject to the terms and conditions herein set forth, that during the Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions:

1. Warranty covers only repairs made by contractor to said roof under this contract and does not cover work by others or future defects not directly attributable to work performed.
2. Specifically excluded from this Warranty are damages to the work, other parts of the building and building contents caused by: a) lightning, windstorm, hailstorm, and other unusual phenomena of the elements; b) fire c) failure of the roofing system substrate including cracking, but excluding hairline cracking, settlement, excessive deflection, deterioration, and decomposition; d) faulty construction of parapet walls, copings, vents, equipment supports, and other edge conditions and penetrations not included in the project; e) repeated vapor condensation on the bottom of roofing; and f) activity on the roofing by others including construction contractors, maintenance personnel, other persons, and animals whether authorized or unauthorized by Owner. When the work has been damaged by any of the foregoing causes, the Warranty shall be null and void until such damage has been repaired by the Owner or by another responsible party so designated.
3. The Roofing Contractor is responsible for damages to work covered by this Warranty.

4. During the Warranty Period, if the Owner allows alteration of the work by anyone other than the Roofing Contractor, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on the roof, this Warranty shall become null and void upon the date of said alterations, but only to extent said alterations affect work covered by this Warranty. If the Owner engages the Roofing Contractor to perform said alterations, the Warranty shall not become null and void, unless the Roofing Contractor, prior to proceeding with said work, shall have notified Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Warranty.
5. During the Warranty Period, if the original use of the roof is changed and it becomes used for, but was not originally specified for other use or service more severe than originally specified, this Warranty shall become null and void upon the date of the said change, but only to the extent said change affects work covered by this Warranty.
6. The Owner shall promptly notify the Roofing Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for Roofing Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.
7. Contractor will promptly inspect reported leaks and if found to be attributed to work performed, make the required repairs.
 - a. If leaks are found to be from other sources, contractor shall so inform owner and make the needed repairs. There will be no charge for this service call.
 - b. Future service calls and leak repairs not attributed to contractors work will be for Owner's account. Cost of repairs will be at a fair and reasonable rate. Materials required will be at cost plus 15%.
8. This Warranty is recognized to be the only warranty of Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of Roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Contractor of his responsibility for performance of the original work, regardless of whether Contract was a contract directly with Owner, or a subcontract with Owner's General Contractor.

IN WITNESS WHEREOF, this instrument has been duly executed this _____ day of _____, 20_____.

Roofing Contractor's Signature: _____

Typed Name: _____

As Its (position): _____

Date: _____

INTENTIONAL BLANK PAGE

SECTION 07 53 05 - THERMOPLASTIC ALLOY (TP) ROOFING SYSTEM FULLY ADHERED

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers all of the work for the Base Bid which includes a fully adhered, thermoplastic (TP) single-ply roofing system, and related accessories and components for Roof Area A as indicated on the drawings.
- B. Single-ply adhesives, primers and sealants to materials shall comply with the Ozone Transport Commission's (OTC's) Model Rule for Adhesives and Sealants.

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions shall govern work under this Section.
- B. Section 06 10 05: Rough Carpentry for Roofing
- C. Section 07 22 05: Thermal Insulation for Roofing
- D. Section 07 60 05: Sheet Metal for Roofing
- E. Section 07 92 05: Sealants for Roofing and Sheet Metal

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):
 - 1. ASTM C 1177 / C 1177M (2006) Glass Mat Gypsum Substrate for Use as Sheathing
 - 2. ASTM C 1289 (2011) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
 - 3. ASTM C 1303 (2007) Test Method for Predicting Long-Term Thermal Resistance of Closed-Cell Foam Insulation
 - 4. ASTM D 1149 (2007) Standard Test Method for Rubber Deterioration - Surface Ozone
 - 5. ASTM D 1204 (2007) Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
 - 6. ASTM D 2136 (2007) Coated Fabrics - Low-Temperature Bend Test
 - 7. ASTM D 2565 (1999) Xenon Arc Exposure of Plastics Intended for Outdoor Applications
 - 8. ASTM D 413 (1998; R 2002e1) Rubber Property - Adhesion to Flexible Substrate
 - 9. ASTM D 751 (2006) Coated Fabrics

10. ASTM E 108 (2005) Fire Tests of Roof Coverings
 11. ASTM E 96 / E 96 M (2010) Standard Test Methods for Water Vapor Transmission of Materials
 - C. FEDERAL SPECIFICATIONS (FS):
 1. HH-I-1972/GEN - Insulation Board, Thermal, Faced, Polyurethane Polyisocyanurate
 2. HH-I-1972/2 (Amendment 1) - Insulation Board, Thermal, Polyurethane or Polyisocyanurate, Faced with Asphalt/Organic Felt, Polymer/Organic Mat, Asphalt/Glass Fiber Mat or Polymer/Glass Mat on Both Sides of the Foam.
 - D. FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM):
 1. FM AS 4470 (Latest Edition) Class I Roof Covers
 2. FM Data Sheet 1-28 (Latest Edition) Insulated Steel Deck
 3. FM Data Sheet 1-29 (Latest Edition) Adhered or Mechanically Attached Single-Ply Membrane Roof Systems
 4. FM Data Sheet -1-49 (Latest Edition)
 5. FM P7825 (2005) Approval Guide
 - E. UNDERWRITERS LABORATORIES (UL)
 1. UL 790 (Latest Edition) Test Methods for Fire Tests of Roof Coverings
 2. UL Building Materials Directory (Latest Edition) Building Materials Directory
 - F. INTERNATIONAL CODE COUNCIL (IBC):
 1. IBC (2009) International Building Code
 2. IEBC (2009) International Existing Building Code
 - G. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):
 1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
 2. NRCA/ARMA/SPRI Repair Manual for Low Sloped Roof Systems.
 - H. SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA):
 1. SMACNA - Architectural Sheet Metal Manual, Sixth Edition
- 1.4 SUBMITTALS
- A. Submit the following in accordance with the Submittals section.

B. Manufacturer's Catalog Data

1. Thermoplastic Sheet
2. Flashing and flashing accessories
3. Adhesives
 - a. For Membrane
 - b. For Insulation and Cover Board
4. Fasteners
5. Membrane walkways

C. Instructions

1. Thermoplastic Sheet
2. Flashing and flashing accessories
3. Adhesives
 - a. For Membrane
 - b. For Insulation and Cover Board
4. Fasteners
5. Membrane walkways

D. Statements

1. Qualification of applicator
2. Qualification of manufacturer

E. Certify that the applicator meets requirements specified under paragraph entitled "Qualification of Applicator", and include names and locations of 5 qualified installations and the roofing system manufacturer's approval of the applicator.

1. Certify that the manufacturer meets the requirements specified under paragraph entitled "Qualification of Manufacturer."

F. Records

1. Instructions to Owner personnel
2. Information Card(s)
 - a. For each assembly, submit a photocopy or typewritten information card containing the information as listed at the end of this section.

3. Written Instructions to Owner Personnel

- a. Submit instructions meeting the requirements of paragraph entitled "Instructions to Owner Personnel" and include copies of Material Safety Data Sheets for maintenance/repair materials.

- G. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.

1.5 QUALITY ASSURANCE

A. Qualifications of Applicator

1. Roofing system applicator shall be approved in writing by the roofing system manufacturer and shall have a minimum of five years experience as an approved applicator with the manufacturer.
2. Contractor shall be a certified/approved to provide the required warranty.
3. Applicator shall also have applied 5 installations of similar size and scope as this project, within the previous 3 years.

B. Qualification of Manufacturer

1. TP sheet manufacturer shall have manufactured the membrane specified herein for at least 5 years.

C. Pre-Construction Conference:

1. After approval of submittals and before performing roofing and insulation work, including associated work, the Consultant/Engineer will hold a Pre-Construction Conference to review the following:
 - a. Drawings and specifications;
 - b. Procedure for on-site inspection and acceptance of the roofing substrate and pertinent structural details relating to the roofing system;
 - c. Contractor's plan for coordination of the work of the various trades involved in providing the roofing system and other components secured to the roofing; and
 - d. Safety requirements.
2. Pre-Construction Conference shall be attended by the Contractor and personnel directly responsible for installation of roofing and insulation, flashing and sheet metal work, mechanical and electrical work, and a representative of the roofing materials manufacturer.
 - a. Before beginning roofing work, confirm in writing the resolution of conflicts among those attending the Pre-Construction Conference.

1.6 ASSEMBLY REQUIREMENTS

A. Underwriters Laboratories (UL)

1. Complete roof covering assembly shall:
 - a. Have ASTM E 108 Class 1A or UL 790 Class A classification; and
 - b. Be listed as part of Fire-Classified roof deck construction in the UL RMSD or Class I roof deck construction in the FM P7825
2. UL approved components of the roof covering assembly shall bear the UL label.

B. Factory Mutual Research Corporation (FM)

1. The complete roof covering assembly shall meet MF-1A-135.
2. The system shall adhere to all requirements of the applicable Factory Mutual criteria.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery

1. Deliver materials in their original, unopened containers or wrappings with labels intact and legible.
2. Where materials are covered by a referenced specification number, labels shall bear the specification number, type, class, compliance with UL requirements, date of manufacture, and shelf life expiration date where applicable.
3. Deliver materials in sufficient quantity to allow the work to proceed without interruption.

B. Storage

1. Store and protect materials from damage and weather in accordance with manufacturer's instructions, except as specified otherwise.
2. Keep materials clean and dry.
3. Use pallets to support and canvas tarpaulins to completely cover stored material.
4. Do not use polyethylene sheet as a covering. Locate materials temporarily stored on the roof in approved areas. Distribute the load to stay within live load limits of the roof construction.
5. Remove unused materials from the roof at the end of each days work.

C. Handling

1. When hazardous materials are involved, adhere to special precautions of the manufacturer and applicable Material Safety Data Sheets.
2. Adhesives contain petroleum distillates and are extremely flammable; prevent personnel from breathing vapors, and do not use near sparks or open flame.

3. Do not use materials contaminated by exposure to moisture.
4. Remove contaminated materials from the site.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install TP sheet roofing during high winds or inclement weather, or when there is ice, frost, moisture, or visible dampness on the substrate surface.
- B. Unless recommended otherwise by the TP sheet manufacturer, do not install TP sheet when air temperature is below 40 degrees F or within 5 degrees F of the dew point.

1.9 SEQUENCING

- A. Coordinate work with that of other trades to ensure that components, which are to be incorporated into the roofing system are available to prevent delays or interruptions as the work progresses.

1.10 WARRANTY

- A. Contractor and manufacturer warranties shall be exclusive and independent of each other. Each warranty shall be issued directly to the Owner and dated as noted below.
- B. Furnish the Three-Year Contractor Warranty as provided at the end of this section. The warranty period shall be not less than 3 years from the date of substantial completion.
 1. If the Contractor fails to perform repairs within 72 hours of written notification, the warranty will not be voided because of work being performed by others to repair deficiencies/failures regardless of manufacturer's warranty to the contrary.
- C. Manufacturer's Warranty
 1. Furnish manufacturer's no monetary limitation (no-dollar-limit) materials and workmanship warranty for the system. The warranty period shall be not less than 20 years from the date of substantial completion. The warranty shall be issued directly to the Owner. The warranty shall provide that if within the warranty period the system becomes non-watertight or shows evidence of failure, rupture or excess weathering due to deterioration of the system resulting from defective materials or installed workmanship the repair or replacement of the defective materials and correction of the defective workmanship shall be the responsibility of the manufacturer. Repairs that become necessary because of defective materials and workmanship while the system is under warranty shall be performed within 7 days after notification, unless additional time is approved by the Owner. Failure to perform repairs within the specified period of time will constitute grounds for having the repairs performed by others and the cost billed to the manufacturer.
 2. Warranty shall cover the membrane maintaining 90 percent of its reflectivity (white color) after 3 years without cleaning/maintenance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Thermoplastic Alloy (TP) Sheet
 1. Approved Manufacturers:
 - a. Complete roof covering assembly shall adhere to the minimum specified material requirements, adhere to the warranty requirements and provide the assembly ratings.

- b. The manufacturers systems, and specific products specified are the options permitted. Substitutions may be approved. Contractors approved by more than one system may select at the option the manufacturer of their choice.
 - c. Approved Systems:
 - 1) Carlisle Syntec Incorporated, Sure-Flex (PVC), minimum .060 thickness, fully adhered.
 - 2) Sarnafil Inc. (PVC), minimum 0.060 thickness, fully adhered, fully adhered (G410).
 - 3) Fibertite SM (KEE), minimum 0.045 fully adhered.
 - d. Color:
 - 1) White for all roof areas.
- B. Flashing and Flashing Accessories
 - 1. Flashing, including perimeter flashing, flashing around roof penetrations, shall be TP coated metal, TP membrane, or TP pre-molded corners or boots for use around penetrations as recommended as standard by the TP sheet manufacturer's printed instructions.
 - 2. TP coated metal base flashings shall be field fabricated where required.
 - 3. Sheet metal base flashings that will contact the membrane shall be turned under 1/2 inch to form a hem.
- C. Adhesives
 - 1. Membrane – A PVC polymeric based adhesive for 100% coverage using roller or spray applications.
 - 2. Adhesives shall be as required by the roof system manufacturer and adhere to the printed requirements.
- D. Fasteners
 - 1. Fasteners for TP coated metal flashing shall be stainless steel, ring shank nails, of one inch into wood nailers, or as recommended by the TP sheet manufacturer's printed instructions.
 - 2. Fasteners for the membrane shall be corrosion resistant, as recommended by the TP sheet manufacturer's printed instructions, and conforming to FM A/S4470.
- E. Membrane Walkways
 - 1. Provide the manufacturer's recommended walkway material at all entry/exit points at all service doors on mechanical equipment and where shown on drawings.

PART 3 - EXECUTION

3.1 VERIFICATION OF CONDITIONS

- A. Examine substrate to which roofing material is to be applied to ensure that its condition is satisfactory for roofing application.
- B. Do not permit voids greater than 1/4 inch wide in the substrate. Concrete substrates shall be cured and free of laitance and curing compounds.
- C. Substrates for roofing materials shall be dry and free of oil, loose and foreign material, dirt, grease, sharp edges, and debris.
- D. Inspect substrates, and correct defects before application of TP sheets.

3.2 PREPARATION

- A. Install wood blocking at perimeters, curbs, and penetrations for use in mechanically attaching the membrane at all penetrations and terminations.
- B. Ensure all penetrations and perimeter conditions are in place prior to installing roofing work.

3.3 APPLICATION

- A. Special Precautions
 - 1. Do not dilute coatings or sealants.
 - 2. Keep liquids in airtight containers, and keep containers closed except when removing materials.
 - 3. Use liquid components at least 60 days before the expiration of their shelf life period. Store adhesives at 60 to 80 degrees F for at least 24 hours prior to use. Follow TP sheet manufacturer's printed application instructions.
 - 4. Do not allow contact between various materials through mixing of remains, dual use of mixing, transporting, or application equipment. Do not use equipment containing the remains of previously used materials.
 - 5. Require workmen and others who walk on the membrane to wear clean, soft-soled (steel-toed) shoes to avoid damage to roofing materials.
 - 6. Do not use equipment with sharp edges, which could puncture the TP sheet.
- B. Work Sequence
 - 1. Arrange work to prevent use of newly constructed roofing for storage, walking surface, or equipment movement.
 - 2. When access is necessary, provide temporary walkways, platforms, or runways to protect new roofing surfaces and flashings from mechanical damage.

C. TP Sheet Roofing

1. Apply TP sheet roofing in accordance with TP sheet manufacturer's application instructions.
2. Unroll and position TP sheet roofing without stretching, and allow membrane to relax in accordance with sheet manufacturer's printed application instructions.
3. Inspect for damaged membrane and remove sections of TP sheet roofing that are creased and damaged.
4. Lap sheets a minimum of 2 inches, or more, if required by TP sheet manufacturer's printed application instructions to incorporate mechanical fastening devices or for other purposes.
5. Install end laps in accordance with TP sheet manufacturer's printed instructions.
6. Clean and hot air weld membrane lap joints using either automatic or hand-held hot air welding equipment.
7. Check hot air welding equipment settings and alignment adjustments each day to ensure total membrane fusion within the weld area.
8. Hot air welded lap joints shall be a minimum of 1 1/2-inches wide and shall be free of fish mouths and wrinkles.
9. All membrane installed each day shall be fully adhered, all seams welded and base flashings installed and protected from inclement weather.
10. Each day probe test the entire length of the joint and correct defects during the day of installation.

D. Fully Adhered Application

1. Properly position the TP sheet on the roof and trim neatly around penetrations and roof projections.
 - a. Install fasteners along edge of sheet in the position and as per requirements and in accordance with FM DS1-28.
 - b. Hot air weld seams and check and seal edges.
2. Perimeter Fastenings
 - a. Secure TP sheet at membrane terminations including roof perimeter, penetrations, curb flashing, skylights, expansion joints, penthouses, and other such locations, by fully adhering to metal flashing mechanically fastened to treated wooden nailers on 4 inches o.c. with stainless steel annular ring nails, or as required by TP sheet manufacturer's printed instructions if more stringent.
 - b. Seal edge of sheet at edge metal.
 - c. Space fasteners a maximum of 8 inches o.c., except as required otherwise by TP sheet manufacturer's printed instructions if more stringent.
 - d. Seal terminations and fasteners within a lap, cover within a lap, or cover with a strip of TP sheet continuously welded to the field sheet.

3. Fully adhere (100% coverage) using a uniform spray or roller application to a smooth, clean dry surface with no contaminants or debris.

4. Bonding Adhesive

- a. Provide in accordance with the sheet manufacturer's printed requirements.

E. Temporary Work

1. Install temporary water cutoffs around incomplete edges of roofing assembly at the end of each day's work and when work must be postponed due to inclement weather.
2. Straighten the insulation line using pieces of insulation loosely laid, and seal TP sheet membrane to deck.
3. Seal metal deck ribs as part of the cutoff.
4. Remove temporary seals completely when work resumes.
5. Remove membrane contaminated by cutoff materials before installation of the system continues.
6. Provide temporary ballast on roofing as necessary to prevent wind damage to TP sheet.

F. Flashing

1. Install required base material prior to installing TP membrane.
2. Install flashing in accordance with printed application instructions of TP sheet manufacturer.
3. Fully adhere membrane base flashing to substrate using bonding adhesive.
4. Extend base flashing not less than 8 inches above roofing surface.
5. Where TP membrane flashing terminates under a metal reglet, caulk reglet with polyurethane or polysulfide sealant.
6. Provide pre-molded corners to complete flashings of curbs, parapets, and other vertical surfaces and prefabricated pipe boots for pipe penetrations where possible.
7. Do not use pitch pockets.

G. Roof Walkways

1. Install membrane walkway material, along roof at front parapet wall, in accordance with TP sheet manufacturer's printed application instructions.
2. Do not use rubber or composition-type walkways.

3.4 PROTECTION

A. Damaged Work and Materials

1. Restore work and materials that become damaged during construction to original condition or replace with new materials.

3.5 FIELD QUALITY CONTROL

A. Roof Drain Test

1. After completing roofing but prior to Owner acceptance, perform the following test for water tightness.
2. Plug primary roof drains and fill with water to edge of drain sump for 24 hours.
3. Do not plug secondary overflow drains.
4. To ensure some drainage from roof, do not test all drains at same time.
5. Measure water levels at beginning and end of the 24-hour period.
6. When precipitation occurs during test period, repeat test.
7. When water level falls, remove water, thoroughly dry, and inspect installation; repair or replace roofing at drain.
8. Repeat test until there is no water leakage.

B. Instructions to Owner Personnel

1. Furnish written and verbal instructions to designated Owner personnel.
2. Instructions shall be given by a competent representative of the TP sheet manufacturer and shall include a minimum of 4 hours on maintenance and emergency repair of membrane.
3. Include a demonstration of membrane repair, and give sources of required special tools.
4. Furnish information on safety requirements during maintenance and repair operations.

C. Protect roof system from moisture intrusion and other forms of damage during course of construction project. Replacement of moisture/damage to new is required.

D. Repair deficiencies/voids (air pockets, wrinkles, fishmouths, tears, cuts, abrasions, contamination, standing/ponding water areas, etc.) daily.

E. Perform test cuts on welded seams (minimum of 2 per day). Pull membrane until failure. Make appropriate adjustments to robot/ automatic welder and repair test cut locations. Maintain a daily log of test results. Retain log and a minimum of 1 test sample result for each day to be provided in Close-Out Documents upon request.

3.6 INFORMATION CARD(S)

- #### A.
- Install a photoengraved or etched aluminum information card (for exterior display) at location to be determined by Consultant/Engineer. Information listed on the Information Card is located at the end of this section

- B. A card shall be provided for each differing assembly and be a minimum size of 8-1/2 by 11 inches.
- C. Secure with removable stainless steel screws at approved location.
- D. A hard copy of each card is required in the Close-Out Documents.

END OF SECTION 07 53 05

THERMOPLASTIC ALLOY (TP) ROOFING SYSTEM FULLY ADHERED WARRANTY

WHEREAS, _____ of

(Address) _____

_____, Telephone: _____, herein called the "Roofing Contractor", has performed Thermoplastic Alloy (TP) Roofing work on the following project:

Owner: _____

Address: _____

_____, Telephone: _____

Name and Type of Building: _____

Address: _____

Area of Work: _____

Date of Acceptance: _____

Guarantee Period: Three Years Date of Expiration: _____

AND WHEREAS, the Roofing Contractor has contracted to warrant said work against leaks and faulty or defective materials and workmanship for the designated Guarantee Period; NOW, THEREFORE, the Roofing Contractor hereby warrants, subject to the terms and conditions herein set forth, that during the Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions:

1. Warranty covers only repairs made by contractor to said roof under this contract and does not cover work by others or future defects not directly attributable to work performed.
2. Specifically excluded from this Warranty are damages to the work, other parts of the building and building contents caused by: a) lightning, windstorm, hailstorm, and other unusual phenomena of the elements; b) fire c) failure of the roofing system substrate including cracking, but excluding hairline cracking, settlement, excessive deflection, deterioration, and decomposition; d) faulty construction of parapet walls, copings, vents, equipment supports, and other edge conditions and penetrations not included in the project; e) repeated vapor condensation on the bottom of roofing; and f) activity on the roofing by others including construction contractors, maintenance personnel, other persons, and animals whether authorized or unauthorized by Owner. When the work has been damaged by any of the foregoing causes, the Warranty shall be null and void until such damage has been repaired by the Owner or by another responsible party so designated.
3. The Roofing Contractor is responsible for damages to work covered by this Warranty.

4. During the Warranty Period, if the Owner allows alteration of the work by anyone other than the Roofing Contractor, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on the roof, this Warranty shall become null and void upon the date of said alterations, but only to extent said alterations affect work covered by this Warranty. If the Owner engages the Roofing Contractor to perform said alterations, the Warranty shall not become null and void, unless the Roofing Contractor, prior to proceeding with said work, shall have notified Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Warranty.
5. During the Warranty Period, if the original use of the roof is changed and it becomes used for, but was not originally specified for other use or service more severe than originally specified, this Warranty shall become null and void upon the date of the said change, but only to the extent said change affects work covered by this Warranty.
6. The Owner shall promptly notify the Roofing Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for Roofing Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.
7. Contractor will promptly inspect reported leaks and if found to be attributed to work performed, make the required repairs.
 - a. If leaks are found to be from other sources, contractor shall so inform owner and make the needed repairs. There will be no charge for this service call.
 - b. Future service calls and leak repairs not attributed to contractors work will be for Owner's account. Cost of repairs will be at a fair and reasonable rate. Materials required will be at cost plus 15%.
8. This Warranty is recognized to be the only warranty of Roofing Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of Roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Contractor of his responsibility for performance of the original work, regardless of whether Contract was a contract directly with Owner, or a subcontract with Owner's General Contractor.

IN WITNESS WHEREOF, this instrument has been duly executed this _____ day of _____, 20_____.

Roofing Contractor's Signature: _____

Typed Name: _____

As Its (position): _____

Date: _____

THERMOPLASTIC ALLOY (TP) ROOFING SYSTEM FULLY ADHERED INFORMATION CARD

1. Location _____ 2. Bldg. Name _____
3. Bldg. No. _____ 4. Roof Area (SF) _____ 5. Cont. No. _____
6. New Construction: ☐ Yes ☐ No 7. Deck Slope: _____
8. Type of Deck:
- ☐ Metal ☐ Wood or Plywood
- ☐ Cast-In-Place Concrete ☐ Other _____
- ☐ Precast/Prestressed Concrete
9. Type of Insulation Board:
- ☐ Polyisocyanurate/Composite ☐ Polyisocyanurate Foam
- ☐ Polystyrene/Composite ☐ Polystyrene
- ☐ Mineral Fiber ☐ Other _____
10. Insulation Manufacturer: _____
11. Insulation Thickness: 1st Layer _____ 2nd Layer _____
12. Cover Board
- ☐ Thickness _____
- ☐ Size _____
- ☐ Manufacturer _____
13. Adhesive
- ☐ Insulation _____ ☐ Manufacturer _____
- ☐ Membrane _____ ☐ Manufacturer _____
14. Roofing Type:
- ☐ Carlisle Syntec Incorporated, Sure-Flex (PVC), minimum .060 thickness, fully adhered.
- ☐ Sarnafil Inc. (PVC), minimum 0.060 thickness, fully adhered, fully adhered (G410).
- ☐ Fibertite SM (KEE), minimum 0.045 fully adhered.
15. Roofing Manufacturer: _____
16. Roofing Installer/Warrantor: _____
17. Roofing Application Method:
- ☐ Fully Adhered
- ☐ Mechanically Fastened
- ☐ Mechanically Fastened/Fully Adhered
18. Warranty Period: From _____ To _____
19. Warranty Serial Number: _____
20. Date Roofing Completed: _____ 21. Inspector: _____
22. Contractor Name/Address: _____
- Signature: _____ Date: _____

INTENTIONAL BLANK PAGE

SECTION 07 60 05 - SHEET METAL FOR ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes all sheet metal items and accessories specified or as required to complete the work. Applicable edge metal systems shall adhere to the general requirements of ANSI/SPRI ES-1, 2003, in accordance with the IBC 2009.

- 1. Use polymer clad metal at all membrane terminations.

- B. All treated / waterproof carpentry shall have waterproof underlayment to provide separation with sheet metal.
- C. New clamping rings, stainless steel bolts and metal strainers are required on all existing roof drains.

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions shall govern work under this Section.
- B. Section 06 10 05: Rough Carpentry for Roofing
- C. Section 07 53 05: Thermoplastic Alloy (TP) Roofing System Full Adhered
- D. Section 07 92 05: Sealants for Roofing and Sheet Metal

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ALUMINUM ASSOCIATION, INC. (AA):
 - 1. AA DAF-45 (2003) Designation System for Aluminum Finishes.
 - 2. AA SAA-46 (1979) Standards for Anodized Architectural Aluminum.
- C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
 - 1. ANSI/SPRI ES-1 (2003) Wind Design Standard for Edge Systems Used with Low Slope Roof Systems
 - 2. ANSI/ASME A112.6.4 (2008) Roof, Deck and Balcony Drains
- D. AMERICAN WELDING SOCIETY (AWS):
 - 1. AWS D1.1/D1.1M (2006) Structural Welding Code – Steel
 - 2. AWS D1.2/D1.2M (2004) Structural Welding Code – Aluminum
- E. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):
 - 1. ASTM A 167 (2004) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

2. ASTM A 48 / A 48M (2003) Gray Iron Castings
3. ASTM A 653/A 653M (2010) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
4. ASTM A 792 / A 792M (2010) Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process
5. ASTM A 924 / A 924M (2006) Steel Sheet, Metallic-Coated by the Hot-Dip Process
6. ASTM B 209 (2010) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
7. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
8. ASTM D 41 / D 41 M (2011) Standard Specification for Asphalt Primer Used in Roofing, FACTORY MUTUAL (FM):
9. FM DS 1-49 (Latest Edition) Perimeter Flashing

F. INTERNATIONAL CODE COUNCIL (ICC):

1. IBC (2009) International Building Code
2. IEBC (2009) International Existing Building Code

G. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):

1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
2. NRCA/ARMA/SPRI Repair Manual for Low Sloped Roof Systems.

H. SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA):

1. SMACNA - Architectural Sheet Metal Manual, Sixth Edition

1.4 SUBMITTALS

- A. Submit the following in accordance with the Submittals section.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Drawings:
 1. Details shall be in strict accordance with the drawings provided.
 2. All details are based on the guidelines of the NRCA Construction Details, Fifth Edition and SMACNA Architectural Sheet Metal Manual, Sixth Edition.
 3. Contractor shall provide shop drawings with the following information for all new sheet metal flashings and components:

- a. Type and gage of metal, configuration, dimensions, fastening and anchoring methods to include type fastener and frequency of attachment, provisions for expansion and contraction flashing closures and trim.
 - b. Any deviation/variation requested due to manufacturers requirements must be submitted in writing for approval.
 - c. Any items of concern should be brought up at the Pre-Construction Conference.
 - D. Samples:
 - 1. One sample of each type of material/sheet metal configuration to be used on this project shall be provided at the Pre-Construction Conference.
 - E. Color Samples of Kynar 500 (Hylar 5000) finishes from manufacturer standard color selections. A minimum of twelve (12) color selections shall be provided. Color samples shall reasonably match existing materials to be replaced.
 - F. Drains and Accessories
 - 1. Existing Drains
 - a. New Clamping rings, stainless steel bolts and metal strainers.
 - G. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.
- 1.5 CONFORMANCE AND COMPATIBILITY
- A. The contractor shall ensure all materials provided are compatible with the other components of the system, are acceptable for the specified use, and meet the requirements of the specifications.
 - B. Coordinate sheet metal and attachment with wood treatment of rough carpentry in accordance with Section 06 10 05, Rough Carpentry for Roofing.
- 1.6 DELIVERY, STORAGE AND HANDLING
- A. Delivery:
 - 1. Package and protect materials during shipment.
 - 2. Materials shall be delivered to the site in an undamaged condition, and in a timely order for incorporation in the work.
 - B. Storage:
 - 1. Do not store more materials on the roof than can be installed the same day and remove unused materials at the end of each day.
 - 2. Materials shall be stored, handled, and installed in a manner to protect them from all damage during the entire construction period.
 - 3. Immediately remove damaged materials from the job site and replace with new material.

C. Handling:

1. Materials shall not be laid on newly installed roof or in areas prone to blow or fall off the roof.

1.7 DIFFERING SITE CONDITIONS

- A. The contractor will notify the Consultant/Engineer immediately of any unforeseen site condition.
- B. The contractor will be required to secure the areas and dry-in the roofing system at no cost to the Owner until the problem is resolved.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Shall conform to the respective reference specifications and other requirements specified herein.
- B. Edge metal systems shall adhere to the general requirements of ANSI/SPRI ES-1, 2003.
- C. Sheet Metal:
 1. Furnish sheet metal items in 8 to 10 foot lengths.
 2. Vertical face of sheet metal components shall be a minimum of 4 inches unless otherwise indicated or approved.
 3. Single pieces less than 8 feet may be used to connect shop fabricated inside and outside corners and at end runs.
 4. Provide accessories and other items essential to complete the sheet metal installation.
 - a. These accessories shall be made of the same material as the items to which they are applied.
 5. Fabricate sheet metal items of the materials specified and to the gage, thickness, or weight as specified, unless required by SMACNA to be heavier gage or size.
 6. Finish:
 - a. Provide Kynar 500 (Hylar 5000) finish for all exposed sheet metal items unless otherwise indicated. Color shall be as selected by Owner.
 - b. Polymer clad where noted.
 7. Exterior vertical face of sheet metal components shall extend a minimum of 1 1/2-inch below blocking.

2.2 TYPES AND GAGES OF METALS

- A. Thermoplastic/Polymer clad metal (edge metal, penetrations, flashings, scuppers)
 1. 24 gage, hot dipped and galvanized (G90 Steel), laminated with a minimum of 0.020 inch (20 mil) polymeric coating.

- B. Steel Sheet, Galvalume AZ55, gage as specified for specific components below:
 - 1. 24 gage (counterflashings, edge metals, wall panels and copings for parapet walls).
- C. Aluminum Sheet ASTM B 209, thickness as specified for specific components below:
 - 1. 0.040 inches (counterflashings, edge metals, wall panels and copings for parapet walls).
- D. Stainless Steel (penetrations/sill flashings):
 - 1. ASTM A 167, Series 302 or 304, 22 gage and soldered.
- E. Cleats:
 - 1. 1 gage/thickness heavier than metal attached; 22 gage minimum for galvalume cleats, 0.050 inches minimum for aluminum cleats.
- F. Gutter Material Gage / Thickness:
 - 1. The sheet metal gage/ thickness for gutter metal shall be as described below in direct relation to each gutter's girth/ width of unformed metal stock.
 - a. 20-inch and less; 24 gage galvanized (Galvalume) or 0.040-inch Aluminum
 - b. 21-inch to 25-inch; 22 gage galvanized (Galvalume) or 0.050-inch Aluminum

2.3 OTHER MATERIALS

- A. Fasteners:
 - 1. Fasteners shall be compatible with the materials being fastened and shall provide for secure, firm attachment.
 - 2. Exposed fasteners shall have domed head with integral metal washer and rubber gasket.
 - 3. Fasteners shall be hot dipped galvanized steel, stainless steel, bronze or copper as a minimum.
 - 4. Only stainless steel fasteners shall be used to connect dissimilar metals.
- B. Membrane Liner and Waterproof Underlayment:
 - 1. Smooth surfaced modified bitumen meeting ASTM D 1970 / D 1970 M for waterproof underlayment is required.
 - 2. Ensure product is compatible with roof membrane and membrane adhesives.
- C. Butyl Tape:
 - 1. Double-sided butyl tape of width as required.
- D. Aluminum Termination Bar:
 - 1. One (1) inch x 1/8 inch thick with slotted holes a minimum of 6 inches on center.

- E. Gutter Brackets (clad with prefinished sheet metal)
 - 1. 1" x 3/16" aluminum bar.
- F. Existing Drains:
 - 1. Provide stainless steel bolts, cast iron clamping ring and metal strainer at all drains.
 - 2. Strainer configuration shall be compatible with and lock to existing drain.
 - 3. ASTM A48, Class 25 and ANSI/ASME A112.6.4, Roof, Deck Drains, and paint coated.
- G. Splash Block:
 - 1. Concrete for use at grade.
 - 2. Metal pan with flow diverter conforming to SMACNA Figure 1-36 for use on rooftop (made of copper or stainless steel). Pan shall be set by adhesion to roof surface in bed of sealant over walkpad material.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Requirements:
 - 1. Provide new metal for all work unless otherwise indicated.
 - 2. Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry and free of defects and projections, which might affect application.
 - 3. For installation of items or criteria not provided, refer to NRCA Construction Details, Fifth Edition and SMACNA Architectural Sheet Metal Manual, Sixth Edition.
 - 4. Provide sheet metal flashing in angles formed where roof decks abut walls, curbs, ventilators, pipes, or other vertical surfaces and wherever indicated and necessary to make the work watertight.
 - 5. Join sheet metal together as indicated.
 - 6. Increase attachment of all components by 100% at corner locations as defined by ASCE-7.
 - 7. All materials indicated to be reused shall be removed without damage and stored for protection until required.
 - 8. Where existing components to be reused do not provide for minimum 4 inch vertical flashing face, install flashing skirt of compatible materials and attach securely in a watertight and water shedding manner.
 - 9. Provide pre-fabricated inside and outside corners at all sheet metal intersection pieces.
 - 10. Sheet metal shall be fabricated to conform to the contours of surfaces to which applied.

11. All sheet metal to have waterproof membrane underlayment installed behind or below the metal components. Waterproof underlayment shall have minimum 4 inch laps and sealed at all terminations and penetrations.
12. Provide conforming sheet metal closures at all flashing termination conditions.
13. Provide accessories and fastenings as required to provide a securely attached, watertight construction.
14. Where sheet metal components are to be embedded in the roofing system, prime both sides of all metal flanges prior to installation.

B. Workmanship:

1. Make lines, arises and angles sharp and true.
2. Free exposed surfaces from visible wave, warp and buckle and tool marks.
3. Fold back exposed edges neatly to form a 1/2-inch hem on concealed side.
4. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.

C. Nailing:

1. Confine nailing of sheet metal generally to sheet metal only where noted or specified.
2. Confine nailing of flashing to one edge only.
3. Space nails 4 inches on center and staggered or as otherwise indicated.
4. Face nailing will not be permitted.
5. Nailers are specified in Section 06 10 05, Rough Carpentry for Roofing.

D. Continuous Cleats:

1. Provide continuous cleats where indicated or specified.
2. Cleats shall be of the same material as material being attached and one gage/increment thicker.
3. Form with integral drip to engage sheet metal to be attached.
4. Attach securely at maximum 6 inches on center, increased to 3 inches on center at corners as defined by ASCE-7.
5. Kick out shall receive 3/4 inch wide lock.

E. Attachment Clips (Wind Cleats)

1. Space clips for counterflashing and raised metal edges evenly not over 24 inches on center and 12 inches on center at corners.
2. Clips shall be not less than 2 inches wide and 6 inches long and of the same metal and 1 gage thicker as the sheet metal being installed.

3. Secure one end of the clip with two fasteners and the cleat folded back over the heads.
4. Lock the bottom end onto the newly installed counterflashing a minimum of 1/2 inch.

F. Rivets and Screws:

1. Install were indicated or required.
2. Provide compatible fasteners and washers where required to protect surface of sheet metal and to provide a watertight connection.
3. Rivets shall be one inch on center unless noted otherwise. Rivets shall be sealed with compatible sealant and match sheet metal finish.

G. Seams:

1. Lap Seams:
 - a. Overlap seams of flashing not less than 4 inches, or as otherwise indicated.
 - b. Completely and neatly fill the joints with two strips of 1/8 inch by 1/2-inch partially cured butyl tape or butyl sealant in an approved manner.
2. Standing Seams:
 - a. Not less than 1 inch high, single-lock with sealant.
 - b. Coped side lap with two beads of butyl sealant for coping and cap flashing sheet metal.
 - c. Coping: As indicated on the drawings.
3. Cover Plates:
 - a. Edge Metal: A minimum 6 inches wide, and one-half inch longer than edge metal. Set in bed of sealant, two nails in center.

H. Protection from Dissimilar Metals:

1. Paint with heavy-bodied bituminous paint or apply butyl tape, surfaces in contact with dissimilar metal, or separate the surfaces by means of waterproof underlayment as approved by Consultant/Engineer.
2. Any wood, nailers or other rough carpentry using Copper Azole (CA), Alkaline Copper Quaternary (ACQ) or Micronized Copper Quaternary (MCQ) treatment will require verification of the following:
 - a. Separation of metal roof, metal wall and sheet metal from the roof carpentry is required using waterproof underlayment as a minimum.
 - b. Type of fasteners acceptable for attachment into these woods (such as stainless steel).
 - 1) Fasteners for wood to wood connectors.
 - 2) Fasteners thru metal into wood.

I. Expansion and Contraction:

1. Provide expansion and contraction joints at not more than 40 foot intervals for metal.
2. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, an additional joint shall be required.
3. Space joints evenly.

3.2 SPECIFIC COMPONENTS

A. Counterflashing and Skirts:

1. All existing counterflashing noted to be reused shall be carefully removed and stored until reinstallation.
2. All damaged sheet metal or missing metal, or material damaged during removal, which would restrict watertight application or provide unsightly appearance as determined by the Consultant/Engineer shall be replaced, at no cost, with new, matching materials.
3. Form the flashing to the required shapes before installation. Provide 4 inch vertical face, minimum, unless otherwise indicated.
4. Metal work shall adhere to details shown.
5. All inside and outside corners and termination pieces shall be shop fabricated.
6. Cleats and locking clips to be one gage/increment thicker than metal being attached.

B. Reglets:

1. Care should be taken not to damage existing reglet /counterflashing when cutting counterflashing and installing new materials.
2. All damaged sheet metal or missing metal, or material damaged during removal, which would restrict watertight application or provide unsightly appearance as determined by the Consultant/Engineer shall be replaced, at no cost, with new, matching materials.
3. After completion of all base and counterflashing work, the sealant of all reglets shall be completely removed, the area cleaned, and new sealant installed as specified in Section 07 92 05, Sealants for Roofing and Sheet Metal.
4. Any damaged reglet or counterflashing shall be repaired to match existing.
5. New reglets shall be cut 1-1/4 inch deep.
6. Sheet metal shall be fabricated with friction cleat and supplemented with lead wedge anchorage.

C. Copings:

1. Provide sheet metal coping as indicated and with termination closure flashing.

2. Edge metals/closures/copings shall have waterproof underlayment installed under coping and turned down minimum 3 inches each side of wall, and extend over wall assembly a minimum of 1 1/2 inches.
3. Coping shall have continuous firm support using non hygroscopic materials sloped to promote positive drainage.
4. Continuous cleats, one gage/increment thicker than metal coping, shall be installed on interior and exterior sides.
5. Sheet metal coping shall be attached with continuous cleats on outer face and screw fastening at maximum 12 inches on center on inner face, unless otherwise indicated or approved.
6. Joints methods shall be as indicated on drawings.
7. All inside and outside corners shall be pre-fabricated with 12-inch legs in each direction measured from inside corner.

D. Cap Flashing

1. Install cap flashing curbing as indicated.
2. Provide continuous, firm support sloped using non hydroscopic materials to promote positive drainage.
3. Install waterproof underlayment over top of support construction and turn down vertical faces and up adjoining wall construction 3 inches, minimum.
4. Seal seams and laps in membrane liner.
5. Install sheet metal cap flashing with joints as indicated.
6. Terminate with prefabricated sheet metal closures.
7. Attach cap flashing as indicated with continuous cleats and screw fastening.

E. Edge Metal

1. Prefabricate in the shapes indicated.
2. Extend flange at least 4 inches on to roofing.
3. Provide a minimum 4 inch vertical face and extend a minimum 1 1/2 inch over wall assembly.
4. At gutter locations, provide a minimum 4-inch vertical face, notched at each spacer, with a minimum 3-inch lap over gutter.
5. Joints methods shall be as indicated on drawings.
6. Set flange over sealant on roof membrane and nail securely to wood nailer with appropriate fasteners a minimum of 1.5 inches long spaced not more than 4 inches on center and staggered.
7. Six (6) wide cover plate with hemmed edges set in two strips sealant/tape on each side of joint.
8. Provide 8 inch strip flashing over metal flange as specified and indicated.

F. Flashing at Roof Penetrations and Equipment Supports

1. Provide flashing for all pipes, ducts and conduits projecting through the roof surface and any equipment supports.
2. No pitch pans/pockets are to be used unless specifically detailed and indicated including a sheet metal umbrella.

G. Roof Drain Flashing:

1. "No Hub" connectors are not permitted. Contractor is required to re-seal new drain assembly using lead method for cast iron drain pipes.
2. Temporarily plug drain when working in drain area. Remove debris from drain area prior to unplugging.
 - a. Remove plug from drain at the end of each day's construction or when inclement weather threatens.
3. Raise or lower drain as needed to provide sump.
4. Ensure insulation tapers up from drain to a minimum 24 inches out at a minimum 1/2"/1' and a maximum of 1'/1'. Provide tapered filler to match field insulation thicknesses.
5. Coat drain bowl flange with mastic/sealant.
6. Run roof membrane over drain bowl flange.
7. Clamp the roof membrane under the drain clamping ring.
8. Secure clamping ring so that membrane is free of wrinkles and folds.
9. Clean drain line at completion of work.
10. Flood test each drain to ensure watertight condition.

H. Scupper/Overflow Scupper:

1. Prefabricate scupper sleeve from minimum 24 gage polymer clad metal.
2. Fabricate to ensure any seams in pan are positioned in top of scupper pan.
3. Seal all seams watertight.
4. Set flanges in bed of sealant.
5. Fasten and strip flash. Weld strip flashing to scupper sleeve.
6. Provide sheet metal 'flaps', with Kynar finish to match exterior wall color.
7. Exterior Flashing/Collar
 - a. Fabricate collar from same metal as coping.

- b. Provide 1/2-inch hemmed edge on all 4 sides.
- c. Set collar in 2 strips of adhesive or butyl tape on all sides.
- d. Secure in place with stainless steel fasteners.
- e. Provide counterflashing above.

I. Gutters:

- 1. Type, shape and size shall be as indicated on drawings.
- 2. Gutters shall be hung type of shape indicated and supported on underside by brackets.
- 3. Provide gutters in sizes indicated complete with mitered corners, end caps, outlets, brackets, spacers, and other accessories necessary for installation.
- 4. Outer rim of gutter shall be a minimum 1-inch lower than the back wall of gutter. Any fastening through the back wall of gutter shall cover a minimum of 1/2-inch higher than the outside face of the gutter system.
- 5. Fabricate gutters in sections not less than 8 feet.
- 6. Gutters shall have a minimum 4-inch lap with two strips of partially cured butyl tape or butyl sealant within the lap seams and riveted one inch on center between the tapes. Joints shall be fabricated to remain watertight.
- 7. Install gutter expansion joint between downspouts at maximum 50 feet between expansion joints. Provide for positive drainage of gutter.
- 8. Join the gutters by riveted and sealed. Provide expansion-type joints midway between outlets.
- 9. Install gutters below slope line of the roof so that snow and ice can slide clear.
- 10. Hang gutters on adjustable support brackets, spaced not more than 30 inches on center and spacers 30 inches on center, staggered between supports. Brackets shall be wrapped in sheet metal to match the gutter metal. Brackets shall also be a minimum 1 inch by 3/16-inch aluminum or 1 inch by 1/8-inch galvanized bar stock. Brackets of the same material shall have extension over top of the gutter (every fourth bracket) and secured thru edge metal, similar to FM 1-49 requirement.
- 11. Adjust gutters to slope uniformly to outlets, with high points occurring midway between outlets.
- 12. Fabricate hangers and fastenings from metals compatible with the gutter material. See Tables in SMACNA manual, if not noted otherwise.
- 13. Install stainless steel bee-hive strainers above downspout openings.

J. Downspouts:

- 1. Type, shape and size shall be as indicated on drawings.
- 2. Provide complete offsets and elbows.
- 3. Provide downspouts in approximate 10-foot lengths.

4. Provide end joints to telescope not less than 1/2-inch and lock longitudinal joints with fasteners two inches on center.
5. Fasteners shall not extend into downspout more than one inch.
6. Keep downspouts not less than 1 inch from walls.
7. Fasten to walls at top, bottom, and at 5 feet on center intervals.
8. Form straps and fasteners of metal compatible with the downspout materials and of same color finish.
9. Provide elbows at wall projection/step out.
10. Termination into splash blocks/pans.
 - a. Provide concrete splash block at grade.
 - b. Provide metal splash pan with flow deflectors where downspout discharges on rooftop.
 - c. For connections to storm drain, provide transition conductors to allow for overflow drainage and neatly fit downspouts into sub-grade drainage connections.
11. Provide terminating downspouts with elbow type fittings as indicated on the drawings.

K. Closure Conditions:

1. Provide prefabricated sheet metal closures at all flashing terminations to ensure a watertight condition.
2. A minimum three inches of coverage between/over the components shall be provided.
3. Metal copings shall have waterproof underlayment installed under coping and turned down minimum 3 inches each side of wall, and extend over wall assembly a minimum of 1 1/2-inch.
4. Metal counterflashings shall provide a minimum of 3" coverage over component being flashed.

3.3 UNIT PRICED QUANTITIES

- A. Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 07 60 05

INTENTIONAL BLANK PAGE

SECTION 07 92 05 - SEALANTS FOR ROOFING AND SHEET METAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Work in this section includes all sealant work required for this project specific to the roofing, sheet metal and adjoining surfaces.
 - 1. Roofing and Sheet Metal

1.2 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 07 60 05: Sheet Metal for Roofing

1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):
 - 1. ASTM C 1193 (2005) Standard Guide for Use of Joint Sealants
 - 2. ASTM C1472 (2006) Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width
 - 3. ASTM C 717 (2007) Standard Terminology of Building Seals and Sealants
 - 4. ASTM C 920 (2011) Elastomeric Joint Sealants
- C. SEALANT WATERPROOFING RESTORATION INSTITUTE:
 - 1. Sealants Handbook
 - 2. Sealants: The Professional's Guide, Sealant, Waterproofing & Restoration Institute, 1995.

1.4 SUBMITTALS

- A. Submit the following in accordance with the Submittals section.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Manufacturer's Catalog Data
 - 1. Sealants/Tapes
 - 2. Primers
 - 3. Backstop materials
 - 4. Data for the sealants shall include shelf life, recommended cleaning solvents, modulus and type cure.

D. Manufacturer's Standard Color Chart

1. Sealants:
 - a. Color to match sheet metal and adjoining surface.

E. Manufacturer's Instructions

1. Sealants/Tapes: Submit application instructions, precautions and mixing instructions for multi-component sealants.

F. Samples

1. Sealants: Submit one tube of each color for each sealant type to be used.

G. Sample Installations:

1. Finished Joint:
 - a. Before sealant work is started, submit a sample of each type of finished joint where directed.
 - b. Sample shall show the workmanship, bond and color of sealant.
 - c. The workmanship, bond and color of sealant throughout the project shall match the approved sample joints.

H. Certificates of Compliance

1. Sealants/Tapes
2. Primers
3. Bond breakers
4. Backstops
5. Submit certificates from the manufacturers attesting that materials meet the specified requirements and compatible for specified use.

I. Material Safety Data Sheets (MSDS): Submit Material Safety Data Sheets with each specification section and include with Safety Plan.

1.5 ENVIRONMENTAL CONDITIONS

- A. The ambient temperature shall be within the limits of 40 and 100 degrees F when sealant is applied.

1.6 DELIVERY AND STORAGE

A. Delivery:

1. Deliver materials to the job site in unopened in manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon.
2. Elastomeric sealant containers shall be labeled to identify type, class, grade and use.
3. Carefully handle and store materials to prevent inclusion of foreign materials or subjection to sustained temperatures exceeding 100 F degrees or less than 40 degrees F.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide sealant that has been tested and found suitable for the substrates to which it will be applied.
- B. Exterior Sealant:
 - 1. Provide a low to medium modulus silicone based or polyurethane based with a neutral cure.
 - 2. ASTM C 920, grade NS, Class 50. "Use" based on adjoining materials.
 - 3. Type – A type S, single component, or type M, multi-component may be used.
 - 4. Locations and Colors for Sealants
 - a. Colors will be selected from standard color charts after mock-ups for each condition field of at least 3 choices is provided.
 - 5. Class
 - a. A Class 50 shall be provided unless specifically approved or noted otherwise.
 - 6. Use
 - a. Sealant use for each condition or application shall adhere to use classification of ASTM C 920.
 - 7. Locations
 - a. Tie-in of sheet metal to various wall types at terminations.
 - b. Metal reglets, where existing flashing extends into various types.
 - c. Metal to metal joints where sealant is indicated or specified.
- C. Sealant Tapes for Sheet Metal Laps:
 - 1. Provide a partially cured butyl tape, thickness 1/8 inch by a minimum of 1/2 inch wide.
 - 2. Locations shall be as follows:
 - a. Lap joints of all metals.
 - b. Beneath cover plates of cap and counterflashings.
 - c. Where noted or specified elsewhere.

2.2 PRIMER FOR SEALANT

- A. Provide a non-staining, quick drying type and consistency recommended by the sealant manufacturer for the particular application.

2.3 BOND BREAKERS

- A. Provide the type and consistency recommended by the sealant manufacturer for the particular application.

2.4 BACKSTOPS

- A. Provide glass fiber roving or neoprene, butyl, polyurethane or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer.
- B. Backstop material shall be compatible with sealant.
- C. Do not use absorptive materials.

2.5 CLEANING SOLVENTS

- A. Provide type recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Surfaces shall be clean, dry to the touch, and free from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion.
- B. When resealing an existing joint remove existing caulking/sealant prior to apply new sealant.
- C. Prepare surface in strict accordance with manufacturers printed instructions.

3.2 APPLICATION OF SEALANTS

- A. Backstops:
 - 1. Install backstops dry and free of tears or holes.
 - 2. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified.
 - 3. Install backstops in the following locations:
 - a. Where indicated.
 - b. Where backstop is not indicated but joint cavities exceed the acceptable maximum depths specified in paragraph entitled, "Joint Width to Depth Ratios".
- B. Primer:
 - 1. Immediately prior to application of the sealant, clean out dust/dirt/loose particles from joints.
 - 2. Where recommended by sealant manufacturer, apply primer to joints in concrete, masonry and metal surfaces in accordance with sealant manufacturer's instructions.
 - 3. Do not apply primer to exposed finish surfaces.

C. Bond Breaker:

1. Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for the type joint and sealant specified.
2. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

D. Sealants:

1. Provide a sealant compatible with the materials to which it is applied.
2. Do not use a sealant that has exceeded its shelf life or has jelled and cannot be discharged in a continuous flow from the gun.
3. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width.
4. Force sealant into joints to fill the joints solidly without air pockets.
5. Tool sealant after application to ensure adhesion.
6. Sealant shall be uniformly smooth and free of wrinkles.
7. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant and tool smooth as specified.

3.3 APPLICATION OF BUTYL TAPES

- A. Surfaces shall be cleaned and prepared as noted below.
- B. No exposed applications of butyl tapes/sealants are permitted.
- C. At each lap, provide 2 continuous applications of tape approximately 1 inch apart within the lap.
- D. Directly after tapes are installed, set and secure metal.

3.4 PROTECTION AND CLEANING

A. Protection:

1. Protect areas adjacent to joints from sealant smears.
2. Masking tapes may be used for this purpose, if removed 5 to 10 minutes after joint is filled.

B. Final Cleaning:

1. Masonry and Other Porous Surfaces:
 - a. Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer.
 - b. Allow excess sealant to cure for 24 hours then remove by wire brushing or sanding.

2. Metal or Non-Porous Surfaces:

- a. Remove excess sealant with a solvent-moistened cloth.

3.5 UNIT PRICED QUANTITIES

- A. Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 07 92 05

