

PROJECT MANUAL

FOR

**Soccer Complex – Bleachers and Press Box
H17-9609-MJ-B**

February 23, 2023

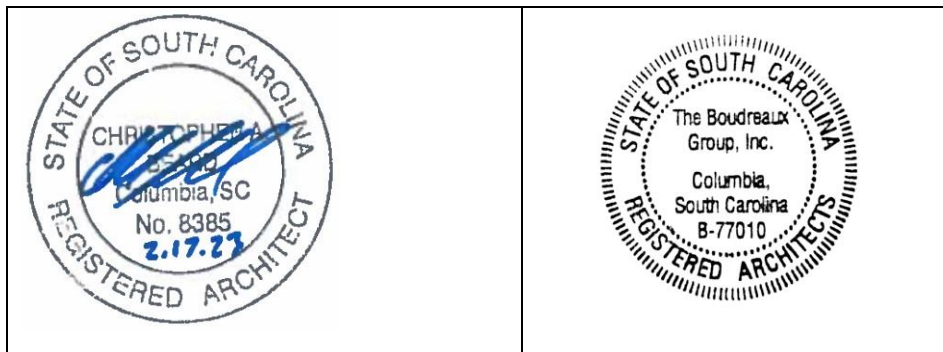


**PO BOX 261954
Conway, SC 29528**

**The Boudreaux Group, Inc.
1519 Sumter Street
Columbia, SC 29201**

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1519 Sumter Street
Columbia, South Carolina 29201

Architect's Project No. C-821-15
Proj #: H17-9609-MJ-B



Construction Documents

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

AGENCY: Coastal Carolina University

PROJECT NAME: Soccer Complex

PROJECT NUMBER: H17-9609-MJ-B CONSTRUCTION COST RANGE: \$1,080,000 to \$1,100,000

PROJECT LOCATION: 540 University Blvd, Conway, SC 29526

DESCRIPTION OF PROJECT/SERVICES: (450 character limit)

New bleachers and press box at Soccer Stadium with concrete sidewalks, fencing, IT, etc.

BID/SUBMITTAL DUE DATE: 04/18/2023 TIME: 02:00 PM NUMBER OF COPIES: 1

PROJECT DELIVERY METHOD: Design-Bid-Build

AGENCY PROJECT COORDINATOR: Mark Avant

EMAIL: avant@coastal.edu TELEPHONE: (843) 349-2152

DOCUMENTS OBTAINED FROM: https://www.coastal.edu/facilities/projects/

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

PERFORMANCE AND LABOR & MATERIAL PAYMENT BONDS: The successful Contractor will be required to provide Performance and Labor and Material Payment Bonds, each in the amount of 100% of the Contract Price.

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

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

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

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

A/E NAME: Boudreaux A/E CONTACT: Chris Beard, AIA

EMAIL: CBeard@Boudreauxgroup.com TELEPHONE: (803) 799-0247

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

PRE-BID DATE: 04/04/2023 TIME: 11:00 AM

PRE-BID PLACE: Tennis Complex, Atlantic Center Industrial Park, 369 Allied Drive, Conway, 29526

BID OPENING PLACE: Facilities 1, 755 SC-544, Conway, 29526

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Mark Avant

755 SC-544

Conway, SC 29526

MAIL SERVICE:

Attn: Mark Avant

PO Box 261954

Conway, SC 29528

IS PROJECT WITHIN AGENCY CONSTRUCTION CERTIFICATION? Yes No

APPROVED BY: Margaret Q Jordan

DATE: 03/24/2023

(OSE PROJECT MANAGER)

South Carolina Division of Procurement
Services, Office of State Engineer Version of
 AIA[®] Document A701[™] – 2018

Instructions to Bidders

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

Cite this document as “AIA Document A701[™]– 2018, Instructions to Bidders — SCOSE Version,” or “AIA Document A701[™]–2018 — SCOSE Version.”

South Carolina Division of Procurement Services, Office of State Engineer Version of AIA Document A701™ – 2018

Instructions to Bidders

for the following Project:

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

Soccer Complex - Bleachers and Press Box

H17-9609-MJ-B

Atlantic Center Industrial Park, 369 Allied Dr., Conway

THE OWNER:

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

Coastal Carolina University

PO Box 261954

Conway, SC 29528

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

THE ARCHITECT:

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

Boudreaux

1519 Sumter Street

Columbia, SC 29201

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

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ARTICLE 1 DEFINITIONS

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

§ 1.1.1 Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA Document A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

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

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

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

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

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

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

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

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

ARTICLE 2 BIDDER'S REPRESENTATIONS

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

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, has correlated the Bidder's observations with the requirements of the Proposed Contract Documents, and accepts full responsibility for any pre-bid existing conditions that would affect the Bid that could have been ascertained by a site visit. As provided in S.C. Code Ann. Reg. 19-445.2042(B), a bidder's failure to attend an advertised pre-bid conference will not excuse its responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the State;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception;
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor; and
- .7 the Bidder understands that it may be required to accept payment by electronic funds transfer (EFT).

§ 2.2 Certification of Independent Price Determination

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

§ 2.2.2 By submitting a Bid, the Bidder certifies that:

- .1 The prices in this Bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to:
 - .1 those prices;
 - .2 the intention to submit a Bid; or
 - .3 the methods or factors used to calculate the prices offered.
- .2 The prices in this Bid have not been and will not be knowingly disclosed by the Bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
- .3 No attempt has been made or will be made by the Bidder to induce any other concern to submit or not to submit a Bid for the purpose of restricting competition.

§ 2.2.3 Each signature on the Bid is considered to be a certification by the signatory that the signatory:

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

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

§ 2.2.5 Drug Free Workplace Certification

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

§ 2.2.6 Certification Regarding Debarment and Other Responsibility Matters

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

- .1 Bidder and/or any of its Principals-
 - .1 Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any state or federal agency;
 - .2 Have not, within a three-year period preceding this Bid, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of bids; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
 - .3 Are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in Section 2.2.6.1.1.2 of this provision.
- .2 Bidder has not, within a three-year period preceding this Bid, had one or more contracts terminated for default by any public (Federal, state, or local) entity.
- .3 "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

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

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

§ 2.2.6.4 Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by Section 2.2.6.1 of this provision. The knowledge and information of a Bidder is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

§ 2.2.6.5 The certification in Section 2.2.6.1 of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Bidder knowingly or in bad faith rendered an erroneous certification, in addition to other remedies available to the State, the Procurement Officer may terminate the contract resulting from this solicitation for default.

§ 2.2.7 Ethics Certificate

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

§ 2.2.8 Restrictions Applicable To Bidders & Gifts

Violation of these restrictions may result in disqualification of your Bid, suspension or debarment, and may constitute a violation of the state Ethics Act.

§ 2.2.8.1 After issuance of the solicitation, Bidder agrees not to discuss this procurement activity in any way with the Owner or its employees, agents or officials. All communications must be solely with the Procurement Officer. This restriction may be lifted by express written permission from the Procurement Officer. This restriction expires once a contract has been formed.

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

§ 2.2.8.3 Bidder acknowledges that the policy of the State is that a governmental body should not accept or solicit a gift, directly or indirectly, from a donor if the governmental body has reason to believe the donor has or is seeking to obtain contractual or other business or financial relationships with the governmental body. SC Regulation 19-445.2165(C) broadly defines the term donor.

§ 2.2.9 Open Trade Representation

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

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

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

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

§ 3.1.3 Reserved

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

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

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

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2. Failure to do so will be at the Bidder's risk. Bidder assumes responsibility for any patent ambiguity that Bidder does not bring to the Architect's attention prior to Bid Opening.

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

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

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

§ 3.3 Substitutions

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

§ 3.3.2 Substitution Process

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

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

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

§ 3.3.2.4 No request to substitute materials, products, or equipment for materials, products, or equipment described in the Bidding Documents and no request for addition of a manufacturer or supplier to a list of approved manufacturers or suppliers in the Bidding Documents will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten (10) days prior to the date for receipt of Bids established in the invitation to bid.

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Any subsequent extension of the date for receipt of Bids by addendum shall not extend the date for receipt of such requests unless the addendum so specifies. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the Work of other contracts that incorporation of the proposed substitution would require, shall be included.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

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

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

§ 3.4 Addenda

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

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

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

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

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

§ 3.4.6 If an emergency or unanticipated event interrupts normal government processes so that Bids cannot be received at the government office designated for receipt of Bids by the exact time specified in the solicitation, the time specified for receipt of Bids will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal government processes resume. In lieu of an automatic extension, an Addendum may be issued to reschedule Bid Opening. If state offices are closed in the county in which Bids are to be received at the time a pre-bid or pre-proposal conference is scheduled, an Addendum will be issued to reschedule the conference. Bidders shall visit <https://www.scemd.org/closings/> for information concerning closings.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

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

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

§ 4.1.3 Sums shall be expressed in numbers.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid. Bidder shall not make stipulations or qualify his Bid in any manner not permitted on the Bid Form. An incomplete Bid or information not requested that is written on or attached to the Bid Form that could be considered a qualification of the Bid, may be cause for rejection of the Bid.

§ 4.1.5 All requested Alternates shall be bid. The failure of the Bidder to indicate a price for an Alternate shall render the Bid non-responsive. Indicate the change to the Base Bid by entering the dollar amount and marking, as appropriate, the box for "ADD TO" or "DEDUCT FROM". If no change in the Base Bid is required, enter "ZERO" or "No Change".

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§ 4.1.6 Pursuant to S.C. Code Ann. § 11-35-3020(b)(i), as amended, Section 7 of the Bid Form sets forth a list of proposed subcontractors for which the Bidder is required to identify those subcontractors the Bidder will use to perform the work listed. Bidder must follow the instructions in the Bid Form for filling out this section of the Bid Form. Failure to properly fill out Section 7 may result in rejection of Bidder's bid as non-responsive.

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

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

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

§ 4.2 Bid Security

§ 4.2.1 If required by the invitation to bid, each Bid shall be accompanied by a bid security in an amount of not less than five percent of the Base Bid. The bid security shall be a bid bond or a certified cashier's check.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

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

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

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

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

§ 4.3 Submission of Bids

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

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

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

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

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

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

§ 4.4 Modification or Withdrawal of Bid

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

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

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

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

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

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

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

§ 5.2 Rejection of Bids

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

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

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

§ 5.2.3 The Owner may reject a Bid as nonresponsive if the prices bid are materially unbalanced between line items or sub-line items. A Bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the Bid

will result in the lowest overall cost to the Owner even though it may be the low evaluated Bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

§ 5.3 Acceptance of Bid (Award)

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

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

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Responsibility

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

§ 6.2 Reserved

§ 6.3 Submittals

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

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

§ 6.4 Posting of Intent To Award

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

Room or Area of Posting: Facilities 1 lobby

Building Where Posted: Winyah House / Facilities 1 Building

Address of Building: 755 SC-544, Conway, SC 29526

WEB site address (if applicable): www.coastal.edu/facilities/projects

Posting date will be announced at Bid Opening. In addition to posting the Notice, the Owner will promptly send all responsive Bidders a copy of the Notice of Intent to Award and the final bid tabulation

§ 6.5 Protest of Solicitation or Award

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

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

- .1 by email to protest-ose@mmo.sc.gov,
- .2 by facsimile at 803-737-0639, or
- .3 by post or delivery to 1201 Main Street, Suite 600, Columbia, SC 29201.

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

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

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

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

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

§ 7.2.1 Following expiration of the protest period, the Owner will forward the Contract for Construction to the Bidder for signature. The Bidder shall return the fully executed Contract for Construction to the Owner within seven (7) days. The Bidder shall deliver the required bonds and certificate of insurance to the Owner not later than three (3) days following the date of execution of the Contract. Failure to deliver these documents as required shall entitle the Owner to consider the Bidder’s failure as a refusal to enter into a contract in accordance with the terms and conditions of the Bidder’s Bid and to make claim on the Bid Security for re-procurement cost.

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

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

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

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

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

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

Number	Title	Date
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- .5 Specifications

Section	Title	Date	Pages
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.6 Addenda:

Number	Date	Pages
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.7 Other Exhibits:

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

- AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
- AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
- The Sustainability Plan:
- Supplementary and other Conditions of the Contract:

.8 Other documents listed below:

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

ARTICLE 9 Miscellaneous

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

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

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

www.sctax.org

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

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

§ 9.2 Submitting Confidential Information

§ 9.2.1 For every document the Bidder submits in response to or with regard to this solicitation or request, the Bidder must separately mark with the word "CONFIDENTIAL" every page, or portion thereof, that the Bidder contends contains information that is exempt from public disclosure because it is either (a) a trade secret as defined in Section 30-4-40(a)(1), or (b) privileged & confidential, as that phrase is used in SC Code of Laws §11-35-410.

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

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

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

§ 9.2.5 By submitting a response to this solicitation, Bidder (1) agrees to the public disclosure of every page of every document regarding this solicitation or request that was submitted at any time prior to entering into a contract (including, but not limited to, documents contained in a response, documents submitted to clarify a response, & documents submitted during negotiations), unless the page is conspicuously marked "TRADE SECRET" or "CONFIDENTIAL" or "PROTECTED", (2) agrees that any information not marked, as required by these bidding instructions, as a "Trade Secret" is not a trade secret as defined by the Trade Secrets Act, & (3) agrees that, notwithstanding any claims or markings otherwise, any prices, commissions, discounts, or other financial figures used to determine the award, as well as the final contract amount, are subject to public disclosure.

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

§ 9.2.7 By submitting a response, the Bidder agrees to defend, indemnify & hold harmless the State of South Carolina, its officers & employees, from every claim, demand, loss, expense, cost, damage or injury, including attorney's fees, arising out of or resulting from the State withholding information that Bidder marked as "confidential" or "trade secret" or "PROTECTED".

§ 9.3 Solicitation Information From Sources Other Than Official Source

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

§ 9.4 Builder's Risk Insurance

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

§ 9.5 Tax Credit For Subcontracting With Minority Firms

§ 9.5.1 Pursuant to S.C. Code Ann. §12-6-3350, taxpayers, who utilize certified minority subcontractors, may take a tax credit equal to 4% of the payments they make to said subcontractors. The payments claimed must be based on work performed directly for a South Carolina state contract. The credit is limited to a maximum of fifty thousand dollars annually. The taxpayer is eligible to claim the credit for 10 consecutive taxable years beginning with the taxable year in which the first payment is made to the subcontractor that qualifies for the credit. After the above ten consecutive taxable years, the taxpayer is no longer eligible for the credit. The credit may be claimed on Form TC-2, "Minority Business Credit." A copy of the subcontractor's certificate from the Governor's Office of Small and Minority Business (OSMBA) is to be attached to the contractor's income tax return.

§ 9.5.2 Taxpayers must maintain evidence of work performed for a State contract by the minority subcontractor. Questions regarding the tax credit and how to file are to be referred to: SC Department of Revenue, Research and Review, Phone: (803) 898-5786, Fax: (803) 898-5888.

§ 9.5.3 The subcontractor must be certified as to the criteria of a "Minority Firm" by the Governor's Office of Small and Minority Business Assistance (OSMBA). Certificates are issued to subcontractors upon successful completion of the certification process. Questions regarding subcontractor certification are to be referred to: Governor's Office of Small and Minority Business Assistance, Phone: (803) 734-0657, Fax: (803) 734-2498. Reference: S.C. Code Ann. §11-35-5010 – Definition for Minority Subcontractor & S.C. Code Ann. §11-35-5230 (B) – Regulations for Negotiating with State Minority Firms.

§ 9.6 Other Special Conditions Of The Work

NOTE: AIA A310™, BID BOND

CONTRACTOR TO PROVIDE

BID BOND

in the Form of

AIA A310™, Bid Bond

**with a certified and current copy of an acceptable
power of attorney**

SE-330 LUMP SUM BID FORM

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

BID SUBMITTED BY: _____
(Bidder's Name)

BID SUBMITTED TO: Coastal Carolina University
(Agency's Name)

FOR: PROJECT NAME: Soccer Complex - Bleachers and Press Box
PROJECT NUMBER: H17-9609-MJ-B

OFFER

- § 1. In response to the Invitation for Construction Services and in compliance with the Instructions to Bidders for the above-named Project, the undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with the Agency on the terms included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.
- § 2. Pursuant to SC Code § 11-35-3030(1), Bidder has submitted Bid Security in the amount and form required by the Bidding Documents.
- § 3. Bidder acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into this Bid:
(Bidder, check all that apply. Note, there may be more boxes than actual addenda. Do not check boxes that do not apply)
- ADDENDA:** #1 #2 #3 #4 #5
- § 4. Bidder accepts all terms and conditions of the Invitation for Bids, including, without limitation, those dealing with the disposition of Bid Security. Bidder agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of **60** Days following the Bid Date, or for such longer period of time that Bidder may agree to in writing upon request of the Agency.
- § 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): New bleachers and press box at Soccer Stadium with concrete sidewalks, fencing, IT, etc.

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

(Bidder to insert Base Bid Amount on line above)

**SE-330
LUMP SUM BID FORM**

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

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

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

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

SE-330 LUMP SUM BID FORM

INSTRUCTIONS FOR SUBCONTRACTOR LISTING

1. Section 7 of the Bid Form sets forth an Agency-developed list of subcontractor license classifications or subclassifications for which Bidder is required to identify the entity (subcontractor(s) and/or himself) Bidder will use to perform this work.
 - a. **Columns A & B:** The Agency fills out these columns to identify the subcontractor license classification / subclassification and related license abbreviation for which the Bidder must list either a subcontractor or himself as the entity that will perform this work. In Column A, the subcontractor license classification/subclassification is identified by name and in Column B, the related contractor license abbreviation (per Title 40 of the SC Code of Laws) is listed. Abbreviations of licenses can be found at: <https://lir.sc.gov/clb/PDFFiles/CLBClassificationAbbreviations.pdf>. If the Agency has not identified a subcontractor license classification/subclassification, the Bidder does not list a subcontractor.
 - b. **Columns C and D:** In these columns, the Bidder identifies the subcontractors it will use for the work of each license listed by the Agency in Columns A & B. Bidder must identify only the subcontractor(s) who will perform the work and no others. Bidders must make sure that their identification of each subcontractor is clear and unambiguous. A listing that could be any number of different entities may be cause for rejection of the bid as non-responsive. For example, a listing of M&M without additional information may be problematic if there are multiple different licensed contractors in South Carolina whose names start with M&M.
2. **Subcontractor Defined:** 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 pursuant to a contract with the prime contractor. Bidder should not identify sub-subcontractors in the spaces provided on the bid form but only those entities with which Bidder will contract directly. Likewise, do not identify 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).
3. **Subcontractor Qualifications:** Bidder must only list subcontractors who possess a South Carolina contractor's license that includes the license classification and/or subclassification identified by the Agency in Columns A & B. The subcontractor license must also be within the appropriate license group for the work. If Bidder lists a subcontractor who is not qualified to perform the work, the Bidder will be rejected as non-responsible.
4. **Use of Own forces:** If, under the terms of the Bidding Documents and SC Contractor Licensing laws, Bidder is qualified to perform the work of a listed subcontractor classification or subclassification and Bidder does not intend to subcontract such work but to use Bidder's own employees to perform such work, the Bidder must insert itself in the space provided.
5. **Use of Multiple Subcontractors:**
 - a. If Bidder intends to use multiple subcontractors to perform the work of a single license classification/subclassification, 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 license classification/subclassification and to use one or more subcontractors to perform the remaining work, Bidder must insert itself and each subcontractor, preferably separating them with the word **"and"**. Bidder must use each entity listed for the work of a single license classification/subclassification in the performance of that work.
 - b. **Optional Listing Prohibited:** Bidder may not list multiple subcontractors for a license classification/subclassification in a form that provides the Bidder the option, after bid opening or award, to choose one or more but not all the listed subcontractors to perform the work for which they are listed. A listing, which on its face requires subsequent explanation to determine whether it is an optional listing, is non-responsive. If Bidder intends to use multiple entities to perform the work for a single listing, Bidder must clearly set forth on the bid form such intent. Bidder may accomplish this by simply inserting the word **"and"** between the names of each entity listed. Agency 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 Agency may reasonably interpret as an optional listing.
6. If Bidder is awarded the contract, Bidder must, except with the approval of the Agency for good cause shown, use the listed entities to perform the work for which they are listed.
7. 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.
8. Bidder's failure to identify an entity (subcontractor or himself) to perform the work of a subcontractor listed in Columns A & B will render the Bid non-responsive.

SE-330 LUMP SUM BID FORM

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

Pursuant to instructions in the Invitation for Construction Services, if any, Bidder will provide to Agency upon the Agency's request and within 24 hours of such request, a listing of manufacturers, material suppliers, and subcontractors, other than those listed in Section 7 above, that Bidder intends to use on the project. Bidder acknowledges and agrees that this list is provided for purposes of determining responsibility and not pursuant to the subcontractor listing requirements of SC Code § 11-35-3020(b)(i).

§ 9. TIME OF CONTRACT PERFORMANCE AND LIQUIDATED DAMAGES

a) CONTRACT TIME

Bidder agrees that the Date of Commencement of the Work shall be established in a Notice to Proceed to be issued by the Agency. Bidder agrees to substantially complete the Work within 90 Calendar Days from the Date of Commencement, subject to adjustments as provided in the Contract Documents.

b) LIQUIDATED DAMAGES

Bidder further agrees that from the compensation to be paid, the Agency shall retain as Liquidated Damages the amount of \$ 100.00 for each Calendar Day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. This amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty for nonperformance.

§ 10. AGREEMENTS

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

§ 11. ELECTRONIC BID BOND

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

ELECTRONIC BID BOND NUMBER: _____

SIGNATURE AND TITLE: _____

**SE-330
LUMP SUM BID FORM**

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATION

SC Contractor's License Number(s): _____

Classification(s) & Limits: _____

Subclassification(s) & Limits: _____

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

BIDDER'S LEGAL NAME: _____

ADDRESS: _____

TELEPHONE: _____

EMAIL: _____

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____

TITLE: _____

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

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

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

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

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

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

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

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

Coastal Carolina University
PO Box 261954
Conway

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

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

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

Soccer Complex - Bleachers and Press Box
H17-9609-MJ-B
Atlantic Center Industrial Park, 369 Allied Dr., Conway

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

Boudreaux
1519 Sumter Street
Columbia, SC 29201

The Owner and Contractor agree as follows.

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

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TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
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- 4 CONTRACT SUM
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- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
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EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

§ 1.2 Any reference in this document to the Agreement between the Owner and Contractor, AIA Document A101, or some abbreviated reference thereof, shall mean the AIA A101-2017 Standard Form of Agreement Between Owner and Contractor, SCOSE Version. Any reference in this document to the General Conditions of the Contract for Construction, AIA Document A201, or some abbreviated reference thereof, shall mean the AIA A201-2017 General Conditions of the Contract for Construction, SCOSE Version.

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The Date of Commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner. The Owner shall issue the Notice to Proceed to the Contractor in writing, no less than seven (7) days prior to the Date of Commencement. Unless otherwise provided elsewhere in the Contract Documents and provided the Contractor has secured all required insurance and surety bonds, the Contractor may commence work immediately after receipt of the Notice to Proceed.

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

§ 3.3 Substantial Completion

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

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

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ARTICLE 4 CONTRACT SUM

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

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

§ 4.2 Alternates

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

(Insert the accepted Alternates.)

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

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

(Identify each allowance.)

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

§ 4.4 Unit prices, if any:

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

Item	Units and Limitations	Price per Unit (\$0.00)
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§ 4.5 Liquidated damages

§ 4.5.1 Contractor agrees that from the compensation to be paid, the Owner shall retain as liquidated damages the amount indicated in Section 9(b) of the Bid Form for each calendar day the actual construction time required to achieve Substantial Completion exceeds the specified or adjusted time for Substantial Completion as provided in the Contract Documents. The liquidated damages amount is intended by the parties as the predetermined measure of compensation for actual damages, not as a penalty.

§ 4.6 Other:

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

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ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

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

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

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

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

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

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

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

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

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

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

§ 5.1.7 Retainage

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

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

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

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

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

§ 5.2 Final Payment

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

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

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

ARTICLE 6 DISPUTE RESOLUTION

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

ARTICLE 7 TERMINATION OR SUSPENSION

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

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

ARTICLE 8 MISCELLANEOUS PROVISIONS

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

§ 8.2 The Owner’s representative:

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

Name:

Title:

Address:

Telephone:

Email:

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

Name:

Title:

Address:

Telephone:

Email:

§ 8.3 The Contractor’s representative:

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

Name:

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Title:
Address:
Telephone:
Email:

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

Name:
Title:
Address:
Telephone:
Email:

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

§ 8.5 The Architect's representative:

Name:
Title:
Address:
Telephone:
Email:

§ 8.6 Insurance and Bonds

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

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

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

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

§ 8.8 Other Provisions:

§ 8.8.1 Additional requirements, if any, for the Contractor's Construction Schedule are as follows:

(Check box if applicable to this Contract)

The Construction Schedule shall be in a detailed precedence-style critical path management (CPM) or primavera-type format satisfactory to the Owner and the Architect that shall also (1) provide a graphic representation of all activities and events that will occur during performance of the Work; (2) identify each phase of construction and occupancy; and (3) set forth milestone dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents.

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

- .2 The Contactor shall monitor the progress of the Work for conformance with the requirements of the Construction Schedule and shall promptly advise the Owner of any delays or potential delays. Whenever the Construction Schedule no longer reflects actual conditions and progress of the Work or the Contract Time is modified in accordance with the terms of the Contract Documents, the Contractor shall update the Construction Schedule to reflect such conditions.
- .3 In the event any progress report indicates any delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary.
- .4 In no event shall any progress report constitute an adjustment in the Contract Time, any milestone date, or the Contract Sum unless any such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

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

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

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

Number	Title	Date
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- .6 Specifications

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

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

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

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

The Sustainability Plan:

Title	Date	Pages
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Supplementary and other Conditions of the Contract:

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

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

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

OWNER *(Signature)*

CONTRACTOR *(Signature)*

(Printed name and title)

(Printed name and title)

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

Insurance and Bonds

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

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

Soccer Complex - Bleachers and Press Box
H17-9609-MJ-B
Atlantic Center Industrial Park, 369 Allied Dr., Conway

THE OWNER:
(Name, legal status and address)

Coastal Carolina University
PO Box 261954
Conway

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

THE CONTRACTOR:
(Name, legal status and address)

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

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

TABLE OF ARTICLES

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

ARTICLE A.1 GENERAL

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

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ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

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

§ A.2.2 Liability Insurance

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

§ A.2.3 Reserved

§ A.2.3.1 Reserved

§ A.2.3.1.1 Reserved

§ A.2.3.1.2 Reserved

§ A.2.3.1.3 Reserved

§ A.2.3.1.4 Reserved

§ A.2.3.2 Reserved

§ A.2.3.3 Reserved

§ A.2.4 Optional Insurance.

The Owner shall purchase and maintain any insurance selected below.

§ A.2.4.1 Other Insurance

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage

Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

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

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

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

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

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

§ A.3.2 Contractor's Required Insurance Coverage

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

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

§ A.3.2.2 Commercial General Liability

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

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

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

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

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

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

§ A.3.2.5 Workers' Compensation at statutory limits.

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

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

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

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

§ A.3.3 Required Property Insurance

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

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

Causes of Loss

Sub-Limit

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

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

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

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

§ A.3.3.3 If the Owner requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

§ A.3.3.4 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section A.3.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project.

§ A.3.4 Contractor's Other Insurance Coverage

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

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

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

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

§ A.3.4.2.1 Reserved

§ A.3.4.2.2 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

§ A.3.4.2.3 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

§ A.3.4.2.4 Boiler and Machinery Insurance
The Contractor shall purchase and maintain boiler and machinery insurance as required, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this

insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ A.3.5 Performance Bond and Payment Bond

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

(Specify type and penal sum of bonds.)

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

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

§ A.3.5.2 The Performance and Labor and Material Payment Bonds shall:

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

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

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

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

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

General Conditions of the Contract for Construction

This version of AIA Document A201[®]–2017 is modified by the South Carolina Division of Procurement Services, Office of State Engineer (“SCOSE”). Publication of this version of AIA Document A201–2017 does not imply the American Institute of Architects’ endorsement of any modification by SCOSE. A comparative version of AIA Document A201–2017 showing additions and deletions by SCOSE is available for review on the SCOSE Web site.

Cite this document as “AIA Document A201[®]–2017, General Conditions of the Contract for Construction—SCOSE Version,” or “AIA Document A201[®]–2017 — SCOSE Version.”

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

General Conditions of the Contract for Construction

for the following PROJECT:

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

Soccer Complex - Bleachers and Press Box
H17-9609-MJ-B
Atlantic Center Industrial Park, 369 Allied Dr., Conway

THE OWNER:

(Name, legal status, and address)

Coastal Carolina University
PO Box 261954
Conway, SC 29528

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

THE ARCHITECT:

(Name, legal status, and address)

Boudreaux
1519 Sumter Street
Columbia, SC 29201

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

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

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

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

§ 1.1.8 Reserved

§ 1.1.9 Notice to Proceed

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

§ 1.1.10 State Engineer

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

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of patent ambiguities within or between parts of the Contract Documents, the Contractor shall 1) provide the better quality or greater quantity of Work, or 2) comply with the more stringent requirement, either or both in accordance with the Architect’s interpretation.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

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

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

§ 1.3 Capitalization

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

§ 1.4 Interpretation

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

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

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

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

§ 1.6 Notice

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

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

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

§ 1.6.3 Notice to Contractor shall be to the address provided in Section 8.3.2 of the Agreement. Notice to Owner shall be to the address provided in Section 8.2.2 of the Agreement. Either party may designate a different address for notice by giving notice in accordance with Section 1.6.1.

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

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

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, except as provided in Section 7.1.7. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's Representative noted in the Agreement.

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

§ 2.2 Reserved

§ 2.3 Information and Services Required of the Owner

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

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

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

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

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services. However, the Owner does not warrant the accuracy of any such information requested by the Contractor that is not otherwise required of the Owner by the Contract Documents. Neither the Owner nor the Architect shall be required to conduct investigations or to furnish the Contractor with any information concerning subsurface characteristics or other conditions of the area where the Work is to be performed beyond that which is provided in the Contract Documents.

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

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect, including but not limited to providing necessary resources, with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

- .1 The Contractor acknowledges that it has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to (a) conditions bearing upon transportation, disposal, handling, and storage of materials; (b) the availability of labor, water, electric power, and roads; (c) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (d) the conformation and conditions of the ground; and (e) the character of equipment and facilities needed preliminary to and during work performance.
- .2 The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from the drawings and specifications made a part of this Contract.

- 3 Any failure of the Contractor to take the actions described and acknowledged in this Section will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to the Owner.

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

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

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

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

§ 3.3 Supervision and Construction Procedures

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

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

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

§ 3.4 Labor and Materials

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

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

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

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

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

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

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements shall be considered defective. Unless caused by the Contractor or a subcontractor at any tier, the Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

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

§ 3.6 Taxes

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

§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

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

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

§ 3.7.4 Concealed or Unknown Conditions

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

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

§ 3.8 Allowances

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

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

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

§ 3.9 Superintendent

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

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

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

§ 3.10 Contractor's Construction and Submittal Schedules

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

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

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

§ 3.11 Documents and Samples at the Site

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

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

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

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

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

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

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

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

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

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

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

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

§ 3.13 Use of Site

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

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

§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

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

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

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

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents. Any reference in the Contract Documents to the Architect taking action or rendering a decision with a "reasonable time" is understood to mean no more than ten (10) days, unless otherwise specified in the Contract Documents or otherwise agreed to by the parties.

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

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

§ 4.2.4 Communications

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

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

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

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

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

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

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

§ 4.2.11 The Architect will, in the first instance, interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. Upon receipt of such request, the Architect will promptly provide the other party with a copy of the request. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, and will not show partiality to either. Except in the case of interpretations resulting in omissions, defects, or errors in the Instruments of Service or perpetuating omissions, defects or errors in the Instruments of Service, the Architect will not be liable for results of interpretations or decisions rendered in good faith. If either party disputes the Architect's interpretation or decision, that party may proceed as provided in Article 15. The Architect's interpretations and decisions may be, but need not be, accorded any deference in any review conducted pursuant to law or the Contract Documents.

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents so as to avoid delay to the construction of the Project. The Architect's response to such requests will be made in writing with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. Any response to a request for information must be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings.

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

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

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

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

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

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

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

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

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

§ 5.3 Subcontractual Relations

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

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

§ 5.3.2 Without limitation on the generality of Section 5.3.1, each Subcontract agreement and each Sub-subcontract agreement shall include, and shall be deemed to include, the following Sections of these General Conditions: 3.2, 3.5, 3.18, 5.3, 5.4, 6.2.2, 7.1.6, 7.3.3, 7.5, 13.1, 13.9, 14.3, 14.4, and 15.1.7.

§ 5.3.3 Each Subcontract Agreement and each Sub-subcontract agreement shall exclude, and shall be deemed to exclude, Sections 13.2 and 13.5 and all of Article 15, except Section 15.1.7, of these General Conditions. In the place of these excluded sections of the General Conditions, each Subcontract Agreement and each Sub-subcontract may include Sections 13.2 and 13.5 and all of Article 15, except Section 15.1.7, of AIA Document A201-2007, Conditions of the Contract, as originally issued by the American Institute of Architects.

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

§ 5.4 Contingent Assignment of Subcontracts

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

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

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

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

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

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

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

§ 6.1.4 Reserved

§ 6.2 Mutual Responsibility

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

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

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

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

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

§ 6.3 Owner’s Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

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

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

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

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

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

The percentages cited above shall be considered to include all indirect costs including, but not limited to field and office managers, supervisors and assistants, incidental job burdens, small tools, and general overhead allocations.

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

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

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

§ 7.2 Change Orders

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

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

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

§ 7.2.2 At the Owner's request, the Contractor shall prepare a proposal to perform the work of a proposed Change Order setting forth the amount of the proposed adjustment, if any, in the Contract Sum; and the extent of the proposed adjustment, if any, in the Contract Time. Any proposed adjustment in the Contract Sum shall be prepared in accordance with Section 7.1.4 and 7.1.5. The Owner's request shall include any revisions to the Drawings or Specifications necessary to define any changes in the Work. Within fourteen (14) days of receiving the request, the Contractor shall submit the proposal to the Owner and Architect along with all documentation required by Section 7.5.

§ 7.2.3 If the Contractor requests a Change Order, the request shall set forth the proposed change in the Work and shall be prepared in accordance with Section 7.2.2. If the Contractor requests a change to the Work that involves a revision

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

§ 7.3 Construction Change Directives

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

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

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

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

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall make an initial determination, consistent with Section 7.3.3, of the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in Section 7.1.5. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change.

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

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

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

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

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

Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

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

§ 7.4 Minor Changes in the Work

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

§ 7.5 Pricing Data and Audit

§ 7.5.1 Cost or Pricing Data

Upon request of the Owner or Architect, Contractor shall submit cost or pricing data prior to execution of a Modification which exceeds \$500,000 [Reference S.C. Code Ann. §§ 11-35-1830 and 11-35-2220, and SC Code Ann. Reg 19-445.2120]. Contractor shall certify that, to the best of its knowledge and belief, the cost or pricing data submitted is accurate, complete, and current as of a mutually determined specified date prior to the date of pricing the Modification. Contractor's price, including profit, shall be adjusted to exclude any significant sums by which such price was increased because Contractor furnished cost or pricing data that was inaccurate, incomplete, or not current as of the date specified by the parties. Notwithstanding Subparagraph 9.10.4, such adjustments may be made after final payment to the Contractor.

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

§ 7.5.3 Records Retention

As used in Section 7.5, the term "Records" means any books or records that relate to cost or pricing data of a Change Order that Contractor is required to submit pursuant to Section 7.5.1. Contractor shall maintain records for three years from the date of final payment, or longer if requested by the chief procurement officer. The Owner may audit Contractor's records at reasonable times and places.

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

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

§ 8.2 Progress and Completion

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

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

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

§ 8.3 Delays and Extensions of Time

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

- .1 is not caused by the fault or negligence of the Contractor or a subcontractor at any tier, and
- .2 is not due to unusual delay in the delivery of supplies, machinery, equipment, or services when such supplies, machinery, equipment, or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery.

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

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

§ 9.2.2 As requested by the Architect, the Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible. The breakdown, being submitted on a uniform standardized format approved by the Architect and Owner, shall be divided in detail, using convenient units, sufficient to accurately determine the value of completed Work during the course of the Project. The Contractor shall update the schedule of values as required by either the Architect or Owner as necessary to reflect:

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

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

§ 9.3 Applications for Payment

§ 9.3.1 Monthly, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require (such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers), and shall reflect retainage as provided for in the Contract Documents.

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

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

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing, provided such materials or equipment will be subsequently incorporated in the Work. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. The Contractor shall 1) protect such materials from diversion, vandalism, theft, destruction, and damage, 2) mark such materials specifically for use on the Project, and 3) segregate such materials from other materials at the storage facility. The Architect and the Owner shall have the right to make inspections of the storage areas at any time.

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

§ 9.4 Certificates for Payment

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

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

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

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect shall withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. The Architect shall withhold a Certificate of Payment if the Application for Payment is not accompanied by the current construction schedule required by Section 3.10.1. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

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

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

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

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

§ 9.6 Progress Payments

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

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

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

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

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

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

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

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

§ 9.7 Failure of Payment

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

§ 9.8 Substantial Completion

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

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

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

- .1 If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.
- .2 If more than one Substantial Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- .3 Representatives of the State Fire Marshal's Office and other authorities having jurisdiction may be present at the Substantial Completion inspection or otherwise inspect the completed Work and advise the Owner whether the Work meets their respective requirements for the Project.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner for its written acceptance of responsibilities assigned in the Certificate and a copy of the signed Certificate shall be delivered to the Contractor. Upon such acceptance, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.8.6 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.

§ 9.8.7 The Owner may not occupy the Work until all required occupancy permits, if any, have been issued and delivered to the Owner.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Unless the parties agree otherwise in the Certificate of Substantial Completion, the Contractor shall achieve Final Completion within thirty days after Substantial Completion. Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect, the Owner, and any other party the Architect or the Owner choose will make an inspection on a date and at a time mutually agreeable. 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 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.

- .1 If more than one Final Completion inspection is required, the Contractor shall reimburse the Owner for all costs of re-inspections or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- .2 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 If OSE has not previously issued a Certificate of Occupancy for the entire Project, the Parties shall arrange for a representative of OSE to participate in the Final Completion inspection.

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

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

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is delayed 60 days through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

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

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

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

§ 10.2 Safety of Persons and Property

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

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

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

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

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

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

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

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

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

§ 10.2.8 Injury or Damage to Person or Property

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

§ 10.3 Hazardous Materials and Substances

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

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

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

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

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

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

§ 10.3.6 Reserved

§ 10.4 Emergencies

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

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

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

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

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

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

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

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

§ 11.2 Owner's Insurance

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

§ 11.2.2 Reserved

§ 11.2.3 Reserved

§ 11.3 Waivers of Subrogation

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

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

§ 11.3.3 Limitation on the Owner's Waiver of Subrogation

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

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

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

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

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Contractors as fiduciary and made payable to the Contractor as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Contractor shall pay the Architect and Owner their just shares of insurance proceeds received by the Contractor, and by appropriate agreements the Architect and Owner shall make payments to their consultants and separate contractors in similar manner.

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

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

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

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

- .1 If 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.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2 unless otherwise provided in the Contract Documents.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

§ 13.1.1 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.

§ 13.1.2 This Contract is formed pursuant to and governed by the South Carolina Consolidated Procurement Code and is deemed to incorporate all applicable provisions thereof and the ensuing regulations.

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

§ 13.3 Rights and Remedies

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

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

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

- 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service;
- 3.5 Warranty
- 3.17 Royalties, Patents and Copyrights
- 3.18 Indemnification
- 7.5 Pricing Data and Audit
- A.3.2.2 Contractor's Liability Insurance (A101, Exhibit A)
- A.3.5 Performance and Payment Bond (A101, Exhibit A)
- 15.1.7 Claims for Listed Damages
- 15.1.8 Waiver of Claims Against the Architect
- 15.6 Dispute Resolution
- 15.6.5 Service of Process

§ 13.4 Tests and Inspections

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

- .1 Inspection, Special Inspections, and testing requirements, if any, as required by the ICC series of Building Codes shall be purchased by the Owner.
- .2 Contractor shall schedule and request inspections in an orderly and efficient manner and shall notify the Owner whenever the Contractor schedules an inspection. Contractor shall be responsible for the cost of inspections scheduled and conducted without the Owner's knowledge and for any increase in the cost of inspections resulting from the inefficient scheduling of inspections.

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

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

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

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

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

§ 13.5 Interest

Payments due to the Contractor and unpaid under the Contract Documents shall bear interest only if and to the extent allowed by S.C. Code Ann. §§ 29-6-10 through 29-6-60. Amounts due to the Owner shall bear interest at the rate of one percent a month or a pro rata fraction thereof on the unpaid balance as may be due.

§ 13.6 Procurement of Materials by Owner

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

§ 13.7 Interpretation of Building Codes

As required by S.C. Code Ann. § 10-1-180, OSE shall determine the enforcement and interpretation of all building codes and referenced standards on state buildings. The Contractor shall refer any questions, comments, or directives from local officials to the Owner and OSE for resolution.

§ 13.8 Minority Business Enterprises

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

§ 13.9 Illegal Immigration

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

§ 13.10 Drug-Free Workplace

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

§ 13.11 False Claims

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

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§ 13.12 Prohibited Acts

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

§ 13.13 Open Trade (Jun 2015)

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

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

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

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

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

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

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

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

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

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

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

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

§ 14.2.5 If, after termination for cause, it is determined that the Owner lacked justification to terminate under Section 14.2.1, or that the Contractor's default was excusable, or that the termination for cause was affected by any other error, then Owner and Contractor agree that the termination shall be conclusively deemed to be one for the convenience of the Owner, and the rights and obligations of the parties shall be the same as if the termination had been issued for in Section 14.4.

§ 14.3 Suspension by the Owner for Convenience

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

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

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

§ 14.4 Termination by the Owner for Convenience

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

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders; and
- .4 complete the performance of the Work not terminated, if any.

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

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

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

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

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

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

§ 15.1.2 Reserved

§ 15.1.3 Notice of Claims

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

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

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, including any administrative review allowed under Section 15.6, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Architect's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary. Claims for an increase in the Contract Time shall be based on one additional calendar day for each full calendar day that the Contractor is prevented from working.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

- .1 Claims for adverse weather shall be based on actual weather conditions at the job site or other place of performance of the Work, as documented in the Contractor's job site log.

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

§ 15.1.6.3 Claims for increase in the Contract Time shall set forth in detail the circumstances that form the basis for the Claim, the date upon which each cause of delay began to affect the progress of the Work, the date upon which each cause of delay ceased to affect the progress of the work, and the number of days increase in the Contract Time claimed as a consequence of each such cause of delay. The Contractor shall provide such supporting documentation as the Owner may require including, where appropriate, a revised construction schedule indicating all the activities affected by the circumstances forming the basis of the Claim.

§ 15.1.6.4 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which may have concurrent or interrelated effects on the progress of the Work, or for concurrent delays due to the fault of the Contractor.

§ 15.1.7 Claims for Listed Damages

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

§ 15.1.7.1 For the Owner, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) costs suffered by a third party unable to commence work, (vi) attorney's fees, (vii) any interest, except to the extent allowed by Section 13.5 (Interest), (viii) lost revenue and profit for lost use of the property, (ix) costs resulting from lost productivity or efficiency.

§ 15.1.7.2 For the Contractor, listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest, except to the extent allowed by Section 13.5 (Interest); (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. Without limitation, this mutual waiver is applicable to all damages due to either party's termination in accordance with Article 14.

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

§ 15.1.8 Waiver of Claims Against the Architect

Notwithstanding any other provision of the Contract Documents, including Section 1.2.1, but subject to a duty of good faith and fair dealing, the Contractor waives all claims against the Architect and any other design professionals who provide design and/or project management services to the Owner, either directly or as independent contractors or subcontractors to the Architect, for listed damages arising out of or relating to this Contract. The listed damages are (i) lost revenue and profit, (ii) losses resulting from injury to business or reputation, (iii) additional or escalated overhead and administration expenses, (iv) additional financing costs, (v) attorney's fees, (vi) any interest; (vii) unamortized equipment costs; and, (viii) losses incurred by subcontractors for the types of damages the Contractor has waived as against the Owner. This mutual waiver is not applicable to amounts due or obligations under Section 3.18 (Indemnification).

§ 15.2 Reserved

§ 15.3 Reserved

§ 15.4 Reserved

§ 15.5 Claim and Disputes - Duty of Cooperation, Notice, and Architects Initial Decision

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

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

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

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

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

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

§ 15.6 Dispute Resolution

§ 15.6.1 If a Claim is not resolved pursuant to Section 15.5 to the satisfaction of either party, both parties shall attempt to resolve the dispute at the field level through discussions between Contractor's Representative and Owner's Representative. If a dispute cannot be resolved through Contractor's Representative and Owner's Representative, then the Contractor's Senior Representative and the Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than twenty-one (21) days after such a request is made, to attempt to resolve such dispute. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute. The meetings required by this Section are a condition precedent to resolution pursuant to Section 15.6.2.

§ 15.6.2 If after meeting in accordance with the provisions of Section 15.6.1, the Senior Representatives determine that the dispute cannot be resolved on terms satisfactory to both the Contractor and the Owner, then either party may submit the dispute by written request to South Carolina's Chief Procurement Officer for Construction (CPOC). Except as otherwise provided in Article 15, all Claims, or controversies relating to the Contract shall be resolved exclusively by the appropriate Chief Procurement Officer in accordance with Title 11, Chapter 35, Article 17 of the

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South Carolina Code of Laws, or in the absence of jurisdiction, only in the Court of Common Pleas for, or in the absence of jurisdiction a federal court located in, Richland County, State of South Carolina. Contractor agrees that any act by the State regarding the Contract is not a waiver of either the State's sovereign immunity or the State's immunity under the Eleventh Amendment of the United States Constitution.

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

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

§ 15.6.5 Service of Process

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

ARTICLE 16 PROJECT-SPECIFIC REQUIREMENTS AND INFORMATION

Attachment "A"

for

AIA A201-2017 General Conditions of the Contract for Construction – South Carolina Division of Procurement Services, Office of State Engineer Version

1. Contractor shall add the following wording to their insurance policy per General Conditions of the Contract for Construction – South Carolina Division of Procurement Services, Office of State Engineer Version of the A201-2017, Article 11 – Insurance and Bonds, page 35 of 46 that the Agency shall be named as an additional insured. The Agency shall be named and noted on the insurance form as:

"Coastal Carolina University, including its current and former trustees, officers, directors, employees, volunteer workers, agents, assigns and students."

2. The contractor, subcontractors and their employees performing work for Coastal Carolina University are required to comply with Title VII of the Civil Rights Act of 1964 and the Title IX Education Amendments of 1972, and subsequent amendments.
3. The use of all forms of tobacco and smoke related products (includes but not limited to, cigarettes, cigars, pipes, chewing tobacco, snuff, water pipes (hookahs), bidis, kreteks, smokeless tobacco, electronic cigarettes, and other devices allowing the ingestion, combustion, inhalation or other use of tobacco or other substances) is prohibited in or on all University property per Policy Number PRES-110 Tobacco-Free Campus created August 2008 and revised and approved December 2019.

SE-355 PERFORMANCE BOND

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

Name: _____
Address: _____

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

Name: _____
Address: _____

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

Name: Coastal Carolina University
Address: PO Box 261954
Conway, SC 29528

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: Soccer Complex - Bleachers and Press Box
State Project Number: H17-9609-MJ-B
Brief Description of Awarded Work: New bleachers and press box at Soccer Stadium with concrete sidewalks, fencing, IT, etc.

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

Name: Boudreaux
Address: 1519 Sumter 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** _____, **2023**
(shall be no earlier than Date of Contract)

BOND NUMBER _____

CONTRACTOR

SURETY

By: _____
(Seal)

By: _____
(Seal)

Print Name: _____

Print Name: _____

Print Title: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

Witness: _____

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

SE-355**PERFORMANCE BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency for the full and faithful performance of the contract, which is incorporated herein by reference.
2. If the Contractor performs the contract, the Surety and the Contractor have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.
3. The Surety's obligation under this Bond shall arise after:
 - 3.1 The Agency has notified the Contractor and the Surety at the address described in paragraph 10 below, that the Agency is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If the Agency, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the Agency's right, if any, subsequently to declare a Contractor Default; or
 - 3.2 The Agency has declared a Contractor Default and formally terminated the Contractor's right to complete the Contract.
4. The Surety shall, within 15 days after receipt of notice of the Agency's declaration of a Contractor Default, and at the Surety's sole expense, take one of the following actions:
 - 4.1 Arrange for the Contractor, with consent of the Agency, to perform and complete the Contract; or
 - 4.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Agency for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Agency and the contractor selected with the Agency's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the Agency the amount of damages as described in paragraph 7 in excess of the Balance of the Contract Sum incurred by the Agency resulting from the Contractor Default; or
 - 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and:
 - 4.4.1 After investigation, determine the amount for which it may be liable to the Agency and, within 60 days of waiving its rights under this paragraph, tender payment thereof to the Agency; or
 - 4.4.2 Deny liability in whole or in part and notify the Agency, citing the reasons therefore.
5. Provided Surety has proceeded under paragraphs 4.1, 4.2, or 4.3, the Agency shall pay the Balance of the Contract Sum to either:
 - 5.1 Surety in accordance with the terms of the Contract; or
 - 5.2 Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
 - 5.3 The balance of the Contract Sum due either the Surety or another contractor shall be reduced by the amount of damages as described in paragraph 7.
6. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond 15 days after receipt of written notice from the Agency to the Surety demanding that the Surety perform its obligations under this Bond, and the Agency shall be entitled to enforce any remedy available to the Agency.
 - 6.1 If the Surety proceeds as provided in paragraph 4.4 and the Agency refuses the payment tendered or the Surety has denied liability, in whole or in part, then without further notice the Agency shall be entitled to enforce any remedy available to the Agency.
 - 6.2 Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the Dispute Resolution process defined in the Contract Documents and the laws of the State of South Carolina.
7. After the Agency has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Agency shall be those of the Contractor under the Contract, and the responsibilities of the Agency to the Surety shall those of the Agency under the Contract. To a limit of the amount of this Bond, but subject to commitment by the Agency of the Balance of the Contract Sum to mitigation of costs and damages on the Contract, the Surety is obligated to the Agency without duplication for:
 - 7.1 The responsibilities of the Contractor for correction of defective Work and completion of the Contract; and
 - 7.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
 - 7.3 Damages awarded pursuant to the Dispute Resolution Provisions of the Contract. Surety may join in any Dispute Resolution proceeding brought under the Contract and shall be bound by the results thereof; and
 - 7.4 Liquidated Damages, or if no Liquidated Damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. The Surety shall not be liable to the Agency or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Sum shall not be reduced or set-off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Agency or its heirs, executors, administrators, or successors.
9. The Surety hereby waives notice of any change, including changes of time, to the contract or to related subcontracts, purchase orders and other obligations.
10. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. Definitions
 - 11.1 Balance of the Contract Sum: The total amount payable by the Agency to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts to be received by the Agency in settlement of insurance or other Claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.
 - 11.2 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform the Contract or otherwise to comply with the terms of the Contract.

SE-357
LABOR & MATERIAL PAYMENT BOND

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

Name: _____
Address: _____

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

Name: _____
Address: _____

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

Name: Coastal Carolina University
Address: PO Box 261954
Conway, SC 29528

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: Soccer Complex - Bleachers and Press Box
State Project Number: H17-9609-MJ-B
Brief Description of Awarded Work: New bleachers and press box at Soccer Stadium with concrete sidewalks, fencing, IT, etc.

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

Name: Boudreaux
Address: 1519 Sumter Street
Columbia, SC 29201

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

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

DATED this _____ **day of** _____, **223** **BOND NUMBER** _____
(shall be no earlier than Date of Contract)

CONTRACTOR

By: _____
(Seal)

Print Name: _____

Print Title: _____

Witness: _____

SURETY

By: _____
(Seal)

Print Name: _____

Print Title: _____
(Attach Power of Attorney)

Witness: _____

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

SE-357**LABOR & MATERIAL PAYMENT BOND****NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Agency to pay for all labor, materials and equipment required for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to the Agency, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants; and
 - 2.2 Defends, indemnifies and holds harmless the Agency from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. With respect to Claimants, and subject to the provisions of Title 29, Chapter 5 and the provisions of §11-35-3030(2)(c) of the SC Code of Laws, as amended, the Surety's obligation under this Bond shall arise as follows:
 - 4.1 Every person who has furnished labor, material or rental equipment to the Contractor or its subcontractors for the work specified in the Contract, and who has not been paid in full therefore before the expiration of a period of ninety (90) days after the date on which the last of the labor was done or performed by him or material or rental equipment was furnished or supplied by him for which such claim is made, shall have the right to sue on the payment bond for the amount, or the balance thereof, unpaid at the time of institution of such suit and to prosecute such action for the sum or sums justly due him.
 - 4.2 A remote claimant shall have a right of action on the payment bond upon giving written notice by certified or registered mail to the Contractor within ninety (90) days from the date on which such person did or performed the last of the labor or furnished or supplied the last of the material or rental equipment upon which such claim is made.
 - 4.3 Every suit instituted upon a payment bond shall be brought in a court of competent jurisdiction for the county or circuit in which the construction contract was to be performed, but no such suit shall be commenced after the expiration of one year after the day on which the last of the labor was performed or material or rental equipment was supplied by the person bringing suit.
5. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 5.1 Send an answer to the Claimant, with a copy to the Agency, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 5.2 Pay or arrange for payment of any undisputed amounts.
 - 5.3 The Surety's failure to discharge its obligations under this paragraph 5 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a claim. However, if the Surety fails to discharge its obligations under this paragraph 5, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs to recover any sums found to be due and owing to the Claimant.
6. Amounts owed by the Agency to the Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the Contractor furnishing and the Agency accepting this Bond, they agree that all funds earned by the contractor in the performance of the Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Agency's prior right to use the funds for the completion of the Work.
7. The Surety shall not be liable to the Agency, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Agency shall not be liable for payment of any costs or expenses of any claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
9. Notice to the Surety, the Agency or the Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the Agency or the contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
10. By the Contractor furnishing and the Agency accepting this Bond, they agree that this Bond has been furnished to comply with the statutory requirements of the South Carolina Code of Laws, as amended, and further, that any provision in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
11. Upon request of any person or entity appearing to be a potential beneficiary of this bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
12. Any dispute, suit, action or proceeding arising out of or relating to this Bond shall be governed by the laws of the State of South Carolina.

13. DEFINITIONS

- 13.1 Claimant: An individual or entity having a direct contract with the Contractor or with a Subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the Contractor and the Contractor's Subcontractors, and all other items for which a mechanic's lien might otherwise be asserted.
- 13.2 Remote Claimant: A person having a direct contractual relationship with a subcontractor of the Contractor or subcontractor, but no contractual relationship expressed or implied with the Contractor.
- 13.3 Contract: The agreement between the Agency and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

SE-380

CHANGE ORDER NO.: _____

CHANGE ORDER TO DESIGN-BID-BUILD CONTRACT

AGENCY: Coastal Carolina University

PROJECT NAME: Soccer Complex - Bleachers and Press Box

PROJECT NUMBER: H17-9609-MJ-B

CONTRACTOR: _____

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

ADJUSTMENTS IN THE CONTRACT SUM:

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

ADJUSTMENTS IN THE CONTRACT TIME:

1. Initial Date for Substantial Completion:		
2. Sum of previously approved increases and decreases in Days:		Days
3. Change in Days for this Change Order:		Days
4. Total Number of Days added to this Contract including this Change Order:	0 Days	
5. New Date for Substantial Completion:		

AGENCY ACCEPTANCE AND CERTIFICATION:

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

BY: _____ **Date:** _____
(Signature of Representative)

Print Name of Representative: _____

Change is within Agency Construction Contract Change Order Certification of: \$ 200,000.00 Yes No

APPROVED BY: _____ **DATE:** _____
(OSE Project Manager)

SUBMIT THE FOLLOWING TO OSE

- SE-380, completed and signed by the Agency.
- SE-380, Page 2, completed and signed by the Contractor, A/E and Agency, with back-up information to support request.

CHANGE ORDER REQUEST SUMMARY – DESIGN-BID-BUILD

AGENCY: Coastal Carolina University

PROJECT NAME: Soccer Complex - Bleachers and Press Box

PROJECT NUMBER: H17-9609-MJ-B

CONTRACTOR: _____

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

ADJUSTMENTS IN THE CONTRACT TIME: Requested Change in Days for this Change Order: _____ Days

			(1) Contractor	(2) Subcontractor	(3) TOTAL
Direct Costs (Provide back-up, including hourly rates, invoices, manhours, etc.)	1.	Labor			
	2.	Materials (including Sales Tax)			
	3.	Rental Charges			
	4.	Subtotal Direct Costs (sum lines 1 – 3)	\$ 0.00	\$ 0.00	\$ 0.00
Contractor Markup (per AIA A201, Section 7.1.5)	5.	Contractor OH&P (not to exceed 17% of line 4, col 1)			
	6.	Subcontractor’s OH&P (not to exceed 17% of line 4, col 2)			
	7.	Contractor markup on Subcontractor (not to exceed 10% of line 4, col 2)			
	8.	Total Contractor Markup (sum lines 5 – 7)	\$ 0.00	\$ 0.00	\$ 0.00
Additional Bonding, Insurance and Permit Costs Associated with Change Order	9.	Bonds			
	10.	Insurance			
	11.	Permits, Licenses or Fees			
	12.	Subtotal (sum lines 9 – 11)	\$ 0.00	\$ 0.00	\$ 0.00
TOTAL	13.	Change Order Cost (sum lines 4, 8, 12, col 3)			\$ 0.00

ADJUSTMENTS IN THE CONTRACT SUM: Amount of this Change Order Request: \$ _____

CONTRACTOR ACCEPTANCE:

BY: _____ Date: _____
(Signature of Representative)

Print Name of Representative: _____

A/E RECOMMENDATION FOR ACCEPTANCE:

BY: _____ Date: _____
(Signature of Representative)

Print Name of Representative: _____

AGENCY ACCEPTANCE:

BY: _____ Date: _____
(Signature of Representative)

Print Name of Representative: _____

Instruction to Contractor: Attach documentation as needed to justify the requested change to the contract and submit to A/E or Agency.

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. Owner-furnished/Owner-installed (OFOI) products.
- 4. Contractor's use of site and premises.
- 5. Work restrictions.

- B. Related Requirements:

- 1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Soccer Complex – Bleacher and Press Box

- 1. Project Location: Corner of Century Circle and Allied Drive, Conway WC

- B. Owner: Coastal Carolina University, P.O. Box 261954, Conway, SC 29528

- 1. Owner's Representative: Mark Avant, 843-349-2152

- C. Architect: BOUDREAUX, 1519 Sumter Street, Columbia, SC 29201

- 1. Architect's Representative: Christopher Beard, AIA, 803-799-0247

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Civil:

DDC Engineers
Bolton & Menk, Inc.
1298 Professional Drive
Myrtle Beach, SC 29577

2. Structural:

Mabry Engineering
840 Shull Street, Suite 100
West Columbia, SC 29169

3. Electrical:

DWG Consulting Engineers
1009 Anna Knapp Blvd, Suite 200
Mt. Pleasant, SC 29464

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Building interior and exterior improvements, system upgrades, finishes

B. Type of Contract:

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

1.5 OWNER-FURNISHED/OWNER-INSTALLED (OFOI) PRODUCTS

A. The Owner will furnish and install products indicated.

B. Owner-Furnished/Owner-Installed (OFOI) Products:

1. Soccer Goals
2. Relocation of existing metal bleachers per keynote AS16 on AS1.1.

1.6 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.7 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
 - 1. Weekend Hours: Coordinate with Owner for weekend hours on an as needed basis.
 - 2. Early Morning Hours: Coordinate with Owner for early morning hours on an as needed basis.
- C. Existing Utility Interruptions: Do not interrupt utilities serving adjacent facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than 72 hours in advance of proposed utility interruptions.
- D. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages and other controlled substances on Owner's property is not permitted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

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. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A.
 - 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. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. 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.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 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, Construction Change Directive, 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.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

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 including aesthetic appearance which is to be solely determined by the Architect.
- 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 with other portions of the Work.
- f. Requested substitution has been coordinated with other portions of the Work.
- g. Requested substitution provides specified warranty.
- h. 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 15 days after commencement of the Work. 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 with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. 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

(Attachments)



SUBSTITUTION REQUEST FORM

Note: This form is to be submitted to the Architect who will in turn forward to the Architect for review.

To: _____

Project: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

DRAWING	SPEC. SECT. NO	PARAGRAPH	SPECIFIED ITEM
_____	_____	_____	_____

Proposed Substitution: _____

Attach complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proper installation.

Submit with request all necessary samples and substantiating data to prove equal quality and performance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance.

Fill in blanks below:

A. Does the substitution affect dimensions shown on the Drawings? Yes _____ No _____

If yes, clearly indicate the changes:

B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution? Yes _____ No _____

If no, fully explain:

C. What effect does substitution have on other Contracts or other Trades?

D. What effect does substitution have on construction schedule?

E. Manufacturer's warranties of the proposed and specified items are:

Same _____ Different _____ (Explain on attachment.)

F. Reason for request: _____



SUBSTITUTION REQUEST FORM

G. Itemized comparison of specified item(s) with the proposed substitution; list significant variations:

H. Accurate cost data comparing proposed substitution with product specified:

I. Designation of maintenance services and sources:

(Attach additional sheets if required.)

**Certification of Equal Performance And
Assumption Of Liability For Equal Performance**

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted By:

Signature *Title*

Firm

Address

Telephone *Date*

Signature shall be by person having authority to legally bind his firm to the above terms. Failure to provide legally biding signature will result in rejection of proposed substitution

For Use By Architect:

_____ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received Too Late

By: _____

Date: _____

Remarks: _____

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. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after 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 for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request 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.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change 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 "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

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

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Architect may issue a Work Change Directive on AIA Document G714. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

- A. Coordination: Correlate line items in the Schedule of Values with Application for Payment forms with Continuation Sheets.
 - 1. Submit the Schedule of Values to Architect with initial Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Technical 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. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
4. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
5. 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.
6. 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.
7. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Forms: Submit on forms indicated in the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 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.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. When an application shows completion of an item, submit final or full waivers.
 2. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 3. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following (electronic):
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule
 4. Products list.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 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 and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 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. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections include the following:
 - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

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

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.5 SUBMITTALS

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

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

1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
1. If applicable existing on-site facilities may be used when meeting with the Owner and Architect.

2. 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.
 3. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 4. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three business days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing and long-lead items.
 - c. Designation of key personnel and their duties.
 - d. Procedures for processing field decisions and Change Orders.
 - e. Procedures for RFIs.
 - f. Procedures for testing and inspecting.
 - g. Procedures for processing Applications for Payment.
 - h. Distribution of the Contract Documents.
 - i. Submittal procedures.
 - j. Preparation of Record Documents.
 - k. Use of the premises and existing building.
 - l. Work restrictions.
 - m. Owner's occupancy requirements.
 - n. Responsibility for temporary facilities and controls.
 - o. Construction waste management and recycling.
 - p. Parking availability.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. First aid.
 - t. Security.
 - u. Progress cleaning.
 - v. Working hours.
 3. Minutes: Record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at biweekly appropriate intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in

planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.8 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs:
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files Adobe Acrobat PDF format and in Word format with area on the form for Architect/Engineer's response
- E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.

- c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 7 days of receipt of the RFI response.
- 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.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at meetings.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

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. Contractor's Construction Schedule.
 - 2. Weekly construction reports.
- B. Related Requirements:
 - 1. Section 014000 "Quality Requirements" for schedule of tests and inspections.
 - 2. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- C. Event: The starting or ending point of an activity.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file.
 - 2. PDF file.

- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- C. Weekly Construction Reports: Submit at weekly intervals.

1.5 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
 - 1. Activity Duration: Define activities so no activity is longer than 3 days, unless specifically allowed by Architect.
 - 2. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Regulatory agency approvals.
 - d. Punch list.
 - 3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 30 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - a. List to be based on current market conditions and availability of materials.
 - 4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.

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

1.7 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. Approximate count of personnel at Project site.
 3. Equipment at Project site.
 4. Material deliveries.
 5. High and low temperatures and general weather conditions, including presence of rain or snow.
 6. Testing and inspection.
 7. Accidents.
 8. Meetings and significant decisions.
 9. Unusual events.
 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. Services connected and disconnected.
 16. Equipment or system tests and startups.
 17. Partial completions and occupancies.
 18. Substantial Completions authorized.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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:

- 1. Submittal schedule requirements.
- 2. Administrative and procedural requirements for submittals.

- B. Related Requirements:

- 1. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
- 2. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
- 3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list 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 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal (if applicable):

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Architect.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractor, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number.
9. Category and type of submittal.
10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- E. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
 - 2. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
- 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. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the

Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 7-10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 7 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 5 days for initial review of each submittal.
5. Allowing procedure in "Concurrent Consultant Review" Subparagraph below may cause tracking problems for Architect and Architect, if any. Delete below if not allowed. See the Evaluations.
6. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 10 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. 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 unsuitable 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 product specifications.

- c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show 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 Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.
 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. Paper 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.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 4. Web-Based Project Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 5. Paper Transmittal: Include paper transmittal including complete submittal information indicated.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - 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.
 7. 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 Two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 8. 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. Architect will retain [one] Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample at the jobsite.
 - 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 three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- E. 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.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit 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. Provide a notarized signature where indicated.
 2. 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.
 3. 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.
 4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 6. 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. Test and Research Reports:
1. 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.
 2. 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.
 3. 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.
 4. 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.

5. 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.
6. 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:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file or three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals 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. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp on paper copies or indication in web-based Project software. Include 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.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required.
 - 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action:
 - 2. Submittals by Web-Based Project Software: Architect will indicate, on Project software website, the appropriate action.
- B. Informational Submittals: Architect will review each submittal and will not return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will return without review submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.

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 the actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- F. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- G. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with

special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

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

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014000

SECTION 014100 - SPECIAL INSPECTIONS AND TESTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for special inspections.
- B. Special inspection 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.
- C. The owner will hire a Special Inspections firm to perform special inspections testing and monitoring and is to submit reports and other items indicated in this specification section unless noted otherwise. Contractor is to cooperate with owner's testing agency and is to allow they appropriate level of access to the work. Refer to Quality Control section of this specification.
- D. Related Sections include the following:
 - 1. Division 1 Section "Quality Requirements" for other quality assurance and quality control requirements not indicated in this Section.
 - 2. Divisions 2 through 33 Sections for specific and additional requirements.

1.2 SUBMITTALS

- A. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of inspecting agency.
 - 4. Dates and locations of inspections.
 - 5. Names of individuals making inspections.
 - 6. Description of the Work 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 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 inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.3 QUALITY ASSURANCE

A. Statement of Special Inspections: Per 2021 IBC Section 1704.3.

1. Content of Statement of Special Inspections:
 - a. The materials, systems, components and work required to have special inspections has been determined by the registered design professional of responsible charge as identified in this specification section.
2. Type and Content of each Special Inspection and Testing:
 - a. Refer to Schedule of Special Inspections provided in this specification section.
3. The type and frequency of Special Inspections required are also listed on the Schedule of Special Inspections included at the end of this Section. Refer to the indicated specification reference for additional detail including whether each type of special inspection is periodic or continuous.
4. Testing and Special Inspections Reports shall be prepared on a weekly basis and shall contain copies of all Daily Reports, Discrepancy Notices, and any other reports as described in section 1.2.A above. The Weekly report shall be distributed to the following parties:
 - a. Owner: Coastal Carolina University, Mark Avant
 - b. Architect of Record: BOUDREAUX, Christopher Beard, AIA
 - c. Contractor: TBD

B. Statement of Special Inspections for Seismic Resistance: Per 2021 IBC Sections 1704.3.2.

1. Seismic Category C
2. The Special Inspections for the seismic force resisting systems for this Project are listed on the Schedule of Special Inspections included at the end of this Section. Refer to the indicated specification reference for additional detail including whether each type of special inspection is periodic or continuous.
3. Testing:
 - a. Submit certificates of compliance as required in Submittal paragraphs listed in specification reference column of “Schedule of Special Inspections”.
4. The type and frequency of Special Inspections required are listed on the Schedule of Special Inspections included at the end of this Section.
5. Testing and Special Inspections Reports shall be prepared on a weekly basis and shall contain copies of all Daily Reports, Discrepancy Notices, and any other reports as described in section 1.2.A above. The Weekly report shall be distributed to the following parties:

- a. Owner: Coastal Carolina University
 - b. Architect of Record: BOUDREUX
 - c. Contractor: TBD
 - d. Electrical Engineer of Record: DWG Consulting Engineers
 - e. Structural Engineer of Record: Mabry Engineering
 - f. Civil Engineer of Record: DDC Engineers, Bolton & Menk, Inc.
6. An architect from BOUDREUX will perform regular observations of the construction progress for general conformance with the Contract Documents.
 7. An Engineer from DDC Engineers, Bolton & Menk, Inc. will perform observations of the construction progress of the site development and infrastructure for general conformance with the Contract Documents at significant construction stages.
 8. An Engineer from DWG Consulting Engineers will perform observations of the electrical systems for general conformance with the Contract Documents at significant construction stages and at completion of the Project.
 9. An Engineer from Mabry Engineering will perform observations of the structural systems for general conformance with the Contract Documents at significant construction stages and at completion of the Project.
 10. A report of each observation will be prepared and distributed to the Architect for distribution to the Contractor, and Owner and Special Inspections Testing Agency.

1.4 QUALITY CONTROL

- A. Responsibilities:
 1. Owner: Pay for initial services indicated in this Section.
 2. Contractor: Fees for retesting and reinspection's are to be withheld from the contractor's pay-app. No money shall flow from the contractor to the testing/inspection firm.
- B. Refer to Division 1 Section "Quality Requirements" for other quality assurance and quality control requirements not indicated in this Section.
- C. Associated Services: Contractor to cooperate with personnel performing required inspections and provide reasonable auxiliary services as requested. 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.
- D. Coordination: Contractor to coordinate sequence of activities to accommodate required special inspections with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Statement of Special Inspections: As indicated at end of this Section.
2. Schedule of Special Inspection Services: As indicated at end of this Section.

1.5 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Conducted by the qualified special inspector or agency indicated, as required by authorities having jurisdiction, and as indicated in Schedule of Special Inspection Services at end of this Section.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.
- C. Refer to Division 1 Section "Quality Requirements" for other tests and inspections not indicated in this Section.

3.2 REPAIR AND PROTECTION

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

STATEMENT OF SPECIAL INSPECTIONS

PROJECT NAME: Soccer Complex – Bleachers and Press Box

CONTRACTOR/ARCHITECT/ENGINEER: Contractor TBD, BOUDREUX , Mabry Engineering, DWG Consulting Engineers, DDC Engineers, Bolton & Menk, Inc.

The following firms and/or individuals are designated to perform the Special Inspections of the material or work designated below. The firms and /or individuals have the experience, qualifications, certifications and/or licenses required to perform the Special Inspections indicated.

Material/Work to be Inspected: All Special Inspections

Firm/Individual Name: To Be Determined

Responsibilities of the special inspectors are indicated on the attached **Schedule of Special Inspections**. Discrepancies shall be brought to the immediate attention of the Contractor so that corrective action can be taken in a timely manner. Copies of all test reports and test data shall be obtained from the inspectors by the A/E on a timely basis.

The Boudreaux Group; Christopher Beard, AIA, Project Manager
(Print or Type Name of A/E Representative)



(Signature)

February 1, 2023

(Date)

SCHEDULE OF SPECIAL INSPECTIONS AND TESTING

Under the Provisions Section 1704 of 2021 IBC, and Chapter 1 of the 2021 IBC, and for Miscellaneous Areas

Project Name: Soccer Complex – Bleachers and Press Box

FABRICATORS (IBC 1704.2.5.1)

<input type="checkbox"/> Approved N/A	Yes	No
Fabricator		

<input type="checkbox"/> Approved Fabricator	Yes	No
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IF CERTIFIED STEEL FABRICATION SHOP, FILL IN BELOW:

Fabricators Name:	
Fabricators Plant Location:	

Required in-plant Inspections Steel Construction Welding Details

STEEL (IBC 1705.2, AISC 360 & AWS)

Item Detailed Instructions and Frequencies

High Strength Bolting	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	
WELDING	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Complete & partial penetration groove welds	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Multi-pass fillet welds	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Single-pass fillet welds >5/16"	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Single-pass fillet welds ≤5/16"	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Diagonal bracing welds	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Floor & roof deck and acoustical deck connection	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
REINFORCEMENT STEEL	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Verification of weldability	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Shear wall and shear reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Other reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Steel frame joint details	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Light gage wall and truss framing member sizes and connections	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

CONCRETE CONSTRUCTION (IBC 1705.3)

Item Detailed Instructions and Frequencies

Materials (1705.3.2)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Steel placement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Steel welding	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Bolts prior & during placement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Use of required design mix	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Concrete sampling for strength test, slump, air content, and temperature of concrete	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Concrete placement	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Curing temperature and techniques	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	

Pre-stressed concrete	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Pre-cast concrete	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Posttensioned concrete	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Form work	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

MASONRY CONSTRUCTION (IBC 1705.4)

Item

Detailed Instructions and Frequencies

As masonry construction begins: Also refer to Specification Section 042000 Unit Masonry			
Site prepared mortar	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Construction of mortar joints	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Location of reinforcement, connectors, pre-stressing tendons and anchorages	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Pre-stressing technique	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Grade and size of pre-stressing tendons and anchorages	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Inspection program verify:			
Size and location of structural elements	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Type, size and location of anchors	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Size, grade and type of reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Welding of reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Cold and hot weather protection	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Application and measurement of pre-stressing force	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Prior to grouting verify:			
Clean grout space	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Placement of reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Grout mix	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Mortar joints	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Grout placement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Grout specimens and prisms	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Construction and submittal compliance verification	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Empirical masonry – Cat. I-III (1705.4.1)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Empirical masonry – Cat. IV (1705.4.1)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Engineered masonry – Cat. I-III (1705.4.1)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Engineered masonry – Cat. IV (1705.4.1)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Engineering & pre-stressing steel (1708.3)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Non-structural component	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Qualification of mechanical & electrical equipment (1705.12.6)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

Seismically isolated structures (1705.12.8)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Testing for seismic resistance	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

WOOD CONSTRUCTION (IBC 1705.5)

Item	Detailed Instructions and Frequencies		
Prefabricated elements & assembly	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Wood roof sheathing nailing	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Anchorage and blocking of wood roof framing	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

SOILS CONSTRUCTION (IBC 1705.6)

Item	Detailed Instructions and Frequencies		
Site preparation	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Site fill material	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Site fill lift thickness	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Site fill soil densities	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Backfill soils materials	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Backfill soil densities	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Footing Bottoms	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	

PIER FOUNDATIONS (IBC 1705.7 through 1705.9)

Item	Detailed Instructions and Frequencies		
Observe drilling operation and reporting	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Verify placement & installation data	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

SPECIAL INSPECTIONS FOR WIND RESISTANCE (IBC 1705.11)

Item	Detailed Instructions and Frequencies		
Structural Wood	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Cold-formed steel light-frame construction	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Wind-resisting components	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE (IBC 1705.12)

Item	Detailed Instructions and Frequencies		
Structural Steel	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Structural Wood	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Cold-formed steel light-framed construction	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Designated Seismic System	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Architectural Components	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Mechanical and Electrical Components	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

Storage racks	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Seismic Isolation Systems	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

TESTING AND QUALIFICATION FOR SEISMIC RESISTANCE (IBC 1705.13)

Item	Detailed Instructions and Frequencies		
Concrete Reinforcement	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Structural Steel	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Seismic Certification of nonstructural components	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

SPRAYED FIRE-RESISTANT MATERIALS (IBC 1705.14)

Item	Detailed Instructions and Frequencies		
Structural member surface conditions	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Material application	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Material thickness	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Material density	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Bonding strength	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS (IBC 1705.15)

Item	Detailed Instructions and Frequencies		
Material and installation	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

DIRECT APPLIED EXTERIOR FINISH SYSTEM (DEFS) EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) (IBC 1705.16)

Item	Detailed Instructions and Frequencies		
Material and installation	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Water-resistive barrier coating	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

FIRE-RESISTANT PENETRATIONS AND JOINTS (IBC 1705.17)

Item	Detailed Instructions and Frequencies		
Penetration Firestops	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Fire-Resistant joint systems	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

SMOKE CONTROL (IBC 1705.18)

Item	Detailed Instructions and Frequencies		
Material	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Installation	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

MISCELLANEOUS AREAS

Item	Detailed Instructions and Frequencies		
These inspections are recommended by the Architect/Engineer			
Suspended Ceiling Grid Clips	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

Suspended Ceiling wire spacing	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Soils backfill (specify locations and frequency)	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	
Soils for curb and gutter (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Soils for parking lots (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Soils for utility trench backfill	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	
Reinforcement for slab on grade sidewalks and drive approaches (specify locations and frequency)	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	
Reinforcement for interior slab on grade (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Concrete testing for slab on grade sidewalks and drive approaches (specify locations and frequency)	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	N/A
Concrete testing for interior slab on grade (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Masonry Veneer (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Gypsum Board Inspections. Inspection of gypsum board at fire rated assemblies	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Fire Resistance Penetration Inspection. Inspection of joint and penetration protection required by IBC 712 and IBC 713.	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Asphalt inspection (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Asphalt testing (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Inspection of seismic resistance (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Steam and water line welding (specify locations and frequency)	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Seismic supports for duct work	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Seismic supports for electrical raceways, cable trays and lights	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	N/A
Seismic supports for plumbing lines including gas.	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Seismic bracing for mechanical units both on slab and suspended	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Energy Efficiency Inspection. Inspection to determine compliance with IBC Chapter 13	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Energy Efficiency. Envelope Insulation R-Value	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Energy Efficiency. Fenestration U-Value	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Energy Efficiency. Duct System R-Value and sealing of joints for duct work	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A

Energy Efficiency. HVAC & Water Heating Equipment Efficiency	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Plumbing Inspections: Underground inspection after trenches or ditches are excavated and piping installed prior to backfill.	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Plumbing Inspections: Rough-in inspection prior to wall or ceiling membranes	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Plumbing Inspections: Final inspection after all fixtures are in place and connected	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Mechanical Inspections: Rough-in inspection prior to ceiling membranes	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Mechanical Inspections: Final inspection after all equipment and systems are in place	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Electrical Inspections: Underground inspection after trenches or ditches are excavated and piping installed prior to backfill.	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	N/A
Electrical Inspections: Rough-in inspections prior to wall or ceiling membranes	<input type="checkbox"/> Continuous	<input type="checkbox"/> Periodic	N/A
Electrical Inspections: Lighting Control Systems	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	N/A
Electrical Inspections: Inspection of label and anchorage of electrical equipment	<input type="checkbox"/> Continuous	<input checked="" type="checkbox"/> Periodic	N/A

Special Inspectors shall:

1. Perform the inspection and testing work indicated in the schedule of special inspections and testing schedule
2. Be approved by the Building Official prior to performing any duties;
3. Provide proof of licensure as a special inspector by the State of South Carolina for each type of inspection;
4. Inspection reports are to meet the requirements of IBC 2021 1704.2.4
5. Inspection reports are to be submitted to the engineer, architect and project manager within 72 hours of inspections;
6. A final inspection report shall be submitted following completion of the project documenting the types of special inspections performed and a statement indicating that the structure is in compliance with drawings, specifications and applicable codes. IBC 2021 Code 1704.2.4
7. Complete Attached SE-962 Statement of Special Inspections Responsibilities

END OF SECTION 014100

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
 - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 3. Division 01 Section "Execution" for progress cleaning requirements.
 - 4. Division 31 Section "Dewatering" for disposal of ground water at Project site.

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, Owner, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 8 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack board.
 - 3. Drinking water and private toilet.
 - 4. Coffee machine and supplies.
 - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
 - 6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.2 EQUIPMENT

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

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service.
 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 1. Install electric power service overhead or underground unless directed to provide underground.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 2. Provide superintendent and project manager with cellular telephone or portable two-way radio for use when away from field office.
- G. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 1. Provide incombustible construction for offices, shops, and sheds located within or within 30 feet (9 m) of building lines. Comply with NFPA 241.

2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated within construction limits indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
 2. Refer to the Civil Drawings as the access road must be constructed to suitably support allowing vehicular traffic to drive over the road for circulation around the site at key religious holiday services.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: This will be coordinated with the Owner at the Pre-Construction meeting.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- F. Project Identification and Temporary Signs: Provide Project identification as indicated in Specification Section 010070 special conditions, and other signs. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
1. Provide temporary, directional signs for construction personnel and visitors.
 2. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in the civil drawings.
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
 - 1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Site Fence: Before construction operations begin furnish and install a site fence in the location indicated on drawing no. C1.1 to separate the existing church campus from the construction area. Provide at least one personnel gate in the fence in a location agreed to by the owner. Provide additional gates as the contractor deems necessary for the contractor's convenience. Adjust the fence location based on the phase of construction to perform work along and around the fence.
 - 1. Material and Equipment: Provide additional fencing as the contractor deems necessary to protect construction materials, tools, equipment from theft or tampering and to protect the public from hazardous construction.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys."
- G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "References" for applicable industry standards for products specified.
 - 2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
 - 3. Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased 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, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

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

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Written Approval by Architect.

- B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: Action on Architect's Submittal Stamp
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

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

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. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Where products are accompanied by the term "as selected," Architect will make selection.

4. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
5. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.

- b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 90 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect/Owner.
- B. 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:
 1. Requested substitution offers Owner an advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.
 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.
 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

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

4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

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. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination with Work under Other Contracts
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
 - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
 - 3. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

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

- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 3. Examine roughing-in for electrical systems to verify actual locations of connections before equipment and fixture installation.
 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

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

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.
1. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 2. Inform installers of lines and levels to which they must comply.
 3. Check the location, level and plumb, of every major element as the Work progresses.
 4. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

3.4 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 7 feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. At Substantial Completion, 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.
1. For glass cases, clean thoroughly such that fingerprints and other dirt are not visible.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

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

3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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:
 - A. Substantial Completion procedures.
 - B. Final completion procedures.
 - C. Warranties.
 - D. Final cleaning.
 - E. Repair of the Work.
- B. Related Requirements:
 - A. Section 017300 "Execution" for progress cleaning of Project site.
 - B. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 ACTION SUBMITTALS

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

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- 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. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 5 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - A. 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.
 - B. 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.
 - C. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - D. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect Label with manufacturer's name and model number where applicable.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 - E. Submit test/adjust/balance records.
 - F. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 5 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - A. Advise Owner of pending insurance changeover requirements.
 - B. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - C. Complete startup and testing of systems and equipment.
 - D. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - E. Advise Owner of changeover in heat and other utilities.
 - F. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

- G. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - H. Complete final cleaning requirements, including touchup painting.
 - I. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 5 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.
- A. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - B. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - A. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 - B. 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.
 - C. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - D. Submit pest-control final inspection report.
- B. Submittals prior to Final Payment: The Contractor may make Application for Final Payment after the Certificate of Substantial Completion has been issued. The following items must be submitted to the Project Manager prior to processing of the Final Application for Payment:
 - a. Affidavit of Payment of Debts and Claims, (AIA-G706);
 - b. Consent of Surety, (AIA-G707);
 - c. Release of Liens, (AIA-G706A) from: Contractors, Sub-Contractors, and Material Suppliers;
 - d. An executed copy of Final Certificate and Release from prime contractor, subcontractors, suppliers and vendors (as included with these specifications);
 - e. Letter on company letterhead stating all temporary facilities and debris have been removed;
 - f. Final "Project Record Documents" as specified in Section 017839, Project Record Documentation;
 - g. Operations & Maintenance Manuals as specified in Section 017823, Operation & Maintenance Data;
 - h. Final "As Built" surveyor's drawings;

- i. Guarantees and Warranties as required by the Specifications
- j. Spare parts and replacement items as required by the Specifications;
- k. Letter on company letterhead stating no Asbestos Containing Materials have been installed in the project;
- l. Certificate of Final Occupancy
- m. Demonstration and testing of equipment has been scheduled or is completed as specified in Section 017900, Demonstration and Training.

2) No final payment application will be processed for payment until final inspection and final acceptance.

3) Close-out time encompasses a large amount of work during a short period of time. Therefore, please begin to submit close-out items as soon as possible so that the Contract may be completed and recommended to the Architect/Engineer and Owner for approval of the final payment.

C. Responsibility

A. It shall be the Contractor's responsibility to see that all requirements of this Section of the Specifications are executed and completed in a timely manner.

B. No Provisions of this Section of the Specifications shall in any way relieve the Contractor of completing his work on time and in accordance with the Project Schedule.

D. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 5 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 a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

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

1.8 DEFICIENCY LISTS

A. During the construction of the work, the Program Manager and/or Architect/Engineer shall inspect the work for conformance to the Contract Document.

B. Should an inspection reveal work that is not in conformance with the Contract Documents, and if the nature of the non-conformance warrants, at the sole discretion of the Program Manager and/or Architect/Engineer, a written list of deficiencies will be issued.

C. The "deficiency list" as hereinafter called, shall stipulate the item or items of work that are in non-conformance and shall specify a reasonable time for the deficient work to be brought into conformance with the Contract Documents.

- D. Upon receipt of the deficiency list the contractor shall by any and all means at his disposal, endeavor to correct the work within the time stipulated. The Contractor shall notify the Program Manager in writing when the work has been corrected and request inspection.
- E. If the inspection reveals the deficiency to be corrected, then the deficiency list shall be rescinded.
- F. During the period that the deficiency list is in effect, the Program Manager may, at his option, not authorize the payment of progress billings until the deficiency list is rescinded or, in the opinion of the Program Manager, the Contractor is making a good faith effort to correct the deficiency.

1.9 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. When the Contractor determines that his work or portions of his work are sufficiently near completion to warrant a preliminary inspection, he shall request in writing to the Program Manager a preliminary inspection.
- B. At a mutually agreeable time the Program Manager and Contractor shall conduct a preliminary inspection of the work for completeness and conformance to the Contract Documents. A punch list of incomplete or non-conformance work shall be made by the Contractor and Program Manager.
- C. The Program Manager shall establish a reasonable time period for the completion or correction of all items on the preliminary inspection punch list. At the end of this time period a pre-final inspection shall be conducted.
- D. The pre-final inspection shall include the Architect/Engineer, Program Manager and Contractor. The Contractor shall present to the Architect/Engineer a written list of all work incomplete, a reason why the item of work is incomplete and give a date when the work will be complete. The pre-final inspection shall not be conducted unless the Contractor presents this list.
- E. Should the Architect/Engineer find any item of work to be unacceptable he shall prepare a punch list of those items. The Contractor shall complete all items on the list within seven (7) days of the inspection.
- F. At the conclusion of the pre-final inspection and if the completeness of the work allows; the Architect/Engineer shall issue a Certificate of Substantial Completion. Should the amount of incomplete work be such that a Certificate of Substantial Completion cannot be issued, another pre-final inspection shall be scheduled.
- G. Upon completion of the pre-final punch list and provided a Certificate of Substantial Completion has been issued a final inspection shall be held with the Architect/Engineer, Program Manager and Contractor. Provided the inspection reveals work to be complete the Architect/Engineer shall establish the date of final completion.
- H. 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.
 - A. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - B. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

- C. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect
 - d. Name of Contractor.
- D. Submit list of incomplete items in Microsoft Office Word format. Architect will return annotated copy.

1.10 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. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 - A. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - B. 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.
 - C. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental 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.
 - A. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. 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 new and existing exterior surfaces and all newly painted existing surfaces.
 - g. 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 original condition.
 - h. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - i. Sweep concrete floors broom clean in unoccupied spaces.
 - j. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - k. 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.
 - l. Remove labels that are not permanent.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean ducts, blowers, and coils if units were operated without filters during construction or 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.

- q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - r. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
- A. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - B. 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.
 - C. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - D. 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 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Furnish and install all materials, labor and equipment necessary to properly perform all concrete work required as specified herein and/or shown on the drawings. To include all concrete, metal reinforcing and finishes.
 - 1. Related Items of Work: Particular attention is directed to the drawings and other construction documents, and to the contract documents, for information pertaining to required items of work which are related to and usually associated with the work of this section of the Project Manual, but which are to be provided as part of the work of other sections of the Project Manual.

1.3 CODES AND STANDARDS: comply with the provisions of the following codes, specifications, and standards, except as otherwise shown or specified:

- A. ACI 301 "Specifications for Structural Concrete for Buildings."
- B. ACI 311 "Recommended Practice for Concrete Inspection."
- C. ACI 318 "Building Code Requirements for Reinforced Concrete."
- D. ACI 347 "Recommended Practice for Concrete Formwork."
- E. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete."
- F. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

1.4 WORKMANSHIP

- A. The Contractor is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances and finishes. Correct deficient concrete as directed by the Architect.

1.5 SUBMITTALS

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, joint systems, curing compounds, and others as requested by Architect.
- B. Shop Drawings; Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- C. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design.
- D. Materials Certificates: Provide certification from admixture manufacturers that chloride content complies with specification requirements.
- E. Shop Drawings for Formwork Indicating Fabrication and Erection of Forms for Specific Finished Concrete Surfaces: Show form construction including jointing, special form joints or

reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually.

- F. Architects review is for general architectural applications and features only. Designing formwork for structural stability and efficiency is Contractor's responsibility.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete:
1. Unless otherwise shown or specified, construct all formwork for exposed concrete surfaces with plywood, or other acceptable and approved panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
 2. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible trademark of an approved inspection agency.
- B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces requiring bond or adhesion, nor impede wetting of surfaces to be cured with water or curing compound.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1-1/2" to surface.
1. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.

2.2 REINFORCING MATERIALS

- A. Reinforcing Steel Bars: ASTM A-615; Grade 60, deformed.
- B. Steel Wire: ASTM A-82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A-185, welded steel wire fabric.
- D. Supports for Reinforcement:
1. Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening bars and welded wire fabric in place. Use wire bar type supports complying with CRSI recommendations, unless otherwise specified. Wood, brick and other devices will not be acceptable.
 2. For slabs on grade, use supports with sand plates, horizontal runners, or concrete brick as approved by Architect where wetted base materials will not support chair legs. Do not use concrete brick if not acceptable to local building official.
 3. For exposed to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are hot-dip galvanized, or plastic protected, or stainless steel protected.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C-150, type 1, unless otherwise acceptable to Architect.
- B. Fly Ash: ASTM C-618, Type F or C.
- C. Aggregates:
 - 1. Fine and coarse aggregate: Conform to ASTM Designation C-33. Provide coarse aggregate to conform to the following size limitations.
 - 2. Nominal maximum size of coarse aggregate shall not be larger than 1/5 of narrowest dimensions between sides of forms, 1/3 of depth of slabs, nor 3/4 of minimum clear distance between reinforcing bars or between bars and forms, whichever is least.
 - 3. Coarse aggregates may be of one size for all concrete placed in one day when quantities to be placed are too small to permit economical use of more than one mix design. When a single mix design is so used, maximum nominal size shall be as required for most critical condition of concreting in accordance with paragraph above.
- D. Water: Clean, fresh, drinkable.
- E. Air-Entraining Admixture: ASTM C-260.
- F. Water-Reducing Admixture: ASTM C-494, Type A.
- G. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C-494, Type F or Type G.
- H. Set-Control Admixtures: ASTM C-494, as follows:
 - 1. Type B, Retarding.
 - 2. Type C, Accelerating.
 - 3. Type D, Water-reducing and Retarding.
 - 4. Type E, Water-reducing and Accelerating.
- I. Calcium chloride will not be permitted in concrete.

2.4 RELATED MATERIALS

- A. Preformed Expansion Joint Fillers: Provide closed-cell synthetic rubber joint filler.
- B. Expansion joint material: ASTM D1056-2C.1
- C. Joint Sealing Compound: Provide polyurethane-sealant.

2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing. Limit use of fly ash to not exceed 25 percent of cement content by weight.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:

1. Regular Weight (150 PCF): Based upon 28 days psi compressive strength requirements, provide concrete having compressive strength of 3000 psi for isolated concrete footings and miscellaneous concrete.
 2. Regular Weight (150 PCF): Based upon 28 days psi compressive strength requirements, provide concrete having compressive strength of 4000 psi for all monolithic concrete footings and slab-on-grade.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by Architect before using in work.

2.6 COMPRESSIVE PROPORTIONS AND CONSISTENCY

- A. Intent of specifications is to secure, for every part of work, structural concrete of homogeneous structure which, when hardened, will have required strength and resistance to weathering.
- B. All concrete shall have water-reducing type chemical, admix at place of mixing. Amount of chemical admix per each bag of cement used shall be in strict accordance with manufacturer's recommendations as related to temperature, humidity, and wind conditions prevailing at site at time of pouring, and dependent upon type of admixture being used.
- C. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
 1. Subjected to freezing and thawing; W/C 0.40.
- D. Volumetric proportioning not allowable. Measurement of materials shall be by weight only and by methods that will permit proportions to be accurately controlled and easily checked at any time during work operations.
- E. The use of calcium chloride in concrete is prohibited.
- F. Use air-entraining admixture in exterior exposed concrete (do not use in interior slab concrete), unless otherwise shown or specified. Add air-entraining admixture at the manufacturer's prescribed rate to result in concrete at the point of placement having air content within the following limits:
 1. Concrete structures and slabs exposed to freezing and thawings or subjected to hydraulic pressure:
 - a. 6% for maximum 3/4-inch aggregate.
 - b. 7% for maximum 1/2-inch aggregate.
- G. Use super plasticizer in concrete for all slab construction. Also use in all pumped concrete and as required for placement and workability.

2.7 SLUMP LIMITS

- A. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows: (Slump may be increased when chemical admixtures are used, provided that the admixture-treated concrete has the same or lower water/cement or water/cementitious material ratio and does not exhibit segregation potential or excessive bleeding.) Concrete mix shall indicate slump without chemical admixtures and with chemical admixtures,
 1. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
 2. Reinforced foundation systems: Not less than 1 inch and not more than 4 inches.

3. Concrete containing HRWR admixture (super-plasticizer): Not more than 8 inches after addition of HRWR to site-verified 2 inches - 3 inches slump concrete.
4. Other concrete: Not less than 1 inch nor more than 4 inches.

2.8 CONCRETE MIXING - READY-MIX CONCRETE

- A. Comply with the requirements of ASTM C-94, and as herein specified.
- B. Delete the references for allowing additional water to be added to the batch for material with insufficient slump. Addition of water to the batch will not be permitted.
- C. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C-94 may be required.
- D. When the air temperature is between 85 degrees F and 90 degrees F, reduce the mixing and delivery time from 1-1/2 hours to 75 minutes and when the air temperature is above 90 degrees F, reduce the mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMS

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by the concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms complying with ACI 347, to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required on work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against the concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Place temporary openings on forms at inconspicuous locations.
- F. Chamfer all exposed corners and edges as directed by Architect if not shown, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Form Ties:
 1. Factory-fabricated, adjustable-length, removable or snapoff metal ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
 2. Unless otherwise shown, provide ties so portion remaining within concrete after removal is at least 1-1/2 inches inside concrete.

3. Unless otherwise shown, provide form ties which will not leave holes larger than 1 inch diameter in concrete surface.
- H. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such ties. Accurately place and securely support items built into forms.
- I. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Re-tighten forms after concrete placement if required to eliminate mortar leaks.

3.2 CONCRETE WORK TOLERANCES

- A. Except when close coordination and fitting of various trades' work precludes allowances of tolerances, maximum total permissible deviations from established lines, grades, and dimensions shall be as stated hereinbelow. Set and maintain forms in such a manner as to ensure completed work within specified tolerance limits. (See Monolithic Slab Finish For Concrete Slab Tolerances.)
 1. Variation from the plumb:
 - a. In lines and surfaces of columns, piers, and in arrises, in 10 feet: 1/4 inch.
 - b. For exposed corner columns, control-joint grooves and other conspicuous lines in any bay or 20-foot maximum: 1/4 inch.
 2. Variations from the level or from indicated grades:
 - a. In structural concrete ceiling, beam soffits, and in arrises, in 10 feet: 1/4 inch.
 - b. For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, in any bay or 20-foot maximum: 1/4 inch.
 3. Variations of the linear building lines from established position in plan and related position of columns, walls, and partitions in any bay or 20-foot maximum: 1/4 inch.
 4. Variations in sizes and locations of sleeves, floor openings, and wall openings: 1/4 inch.
 5. Variations in cross-sectional dimensions of columns and beams and in thickness of walls: 1/4 inch.
 6. Variations in footings:
 - a. Variation in dimensions in plan: Minus 1/2 inch; Plus 2 inches (applies to concrete only - not to reinforcing bars or dowels).
 - b. Misplacement or eccentricity: 2 percent of footing width in direction of misplacement, but not more than 2 inches. (Concrete only.)
 7. Reduction in thickness: Minus 5 percent of specified thickness.
 8. Variation in steps: In a flight of stairs:
 - a. Rise: 1/8 inch.
 - b. Tread: 1/4 inch.

3.3 PLACING REINFORCEMENT

- A. Comply with the specified codes and standards, the Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and as herein specified. Avoid cutting or puncturing vapor retarder during reinforcing placement and concreting operations.

- B. Clean reinforcement of loose rust and mill scale, soil, ice and other materials which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
- D. Place reinforcement to obtain at least the minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcements in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Do not place reinforcing bars more than 2 inches beyond the last leg of continuous bar support. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.
- F. Do not splice reinforcement at points of maximum stress. At points where bars lap or splice, including distribution steel, provide sufficient lap to transfer stress between bars by bond and shear. Stagger splices in adjacent bars. Lap splices in piers, struts, sufficiently to transfer full stress by bond.
- G. Protect metal reinforcement by thickness of concrete indicated. Where not otherwise shown, thickness of concrete over reinforcement shall be as follows:
 - 1. Where concrete is deposited against ground without use of forms: not less than 3 inches.
 - 2. Where concrete is exposed to weather, or exposed to ground but placed in forms: not less than 2 inches for bars more than 5/8 inch in diameter and 1-1/2 inch for bars 5/8 inch or less in diameter.
 - 3. In slabs and walls not exposed to ground: not less than 3/4 inch.
 - 4. In all cases, thickness of concrete over reinforcement shall be at least equal to diameter of bars.
- H. Position all reinforcement accurately. Secure at intersections with annealed wire ties or bar clips. Support with metal supports, spacers, or hangers of approved type. Metal supports (for reinforcing) that are placed directly against horizontal forms, shall have plastic-coated legs wherever the finished concrete surfaces will be exposed in the completed work, and wherever the finished concrete surfaces are to receive any type of directly-applied finish material which could be subject to damage due to stain from rusting of non-plastic-coated materials.
- I. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction. Arrange runways over slabs to avoid traffic directly on mesh during pouring operations. Rolled wire shall be straightened into flat sheets before being placed.

3.4 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto. No aluminum conduit or inserts shall be embedded in concrete.
- B. If, in the judgment of the Engineer, embedded items are located or grouped in a manner that will weaken the structure, the Contractor shall take necessary corrective steps.

3.5 CONCRETE PLACEMENT

- A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation

of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

- B. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete", and as herein specified.
 - 1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- C. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
 - 2. Do not use vibrators to transport concrete inside forms.
- D. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
 - 1. When air temperature has fallen to or is expected to fall below 40 degrees F (4 degrees C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C), and not more than 80 degrees F (27 degrees C) at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- E. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
 - 1. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
 - 2. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.6 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.
- C. Smooth Rubbed Finish:

1. Provide smooth rubbed finish to exposed surfaces and to scheduled concrete surfaces, which have received smooth form finish treatment, not later than one day after form removal.
 2. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.
- E. Repair of Surface Defects: After forms are removed, any concrete that obviously has been improperly formed or is out of alignment or level beyond required tolerances, or which shows a defective surface that cannot be satisfactorily repaired or patched, shall be removed.

3.7 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F (10 degrees C) for 4 days after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days.

3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
- D. Grout base plates and foundations as indicated, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.

3.9 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The Owner will employ a testing laboratory, approved by the Architect, to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete includes the following:
1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 2. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

3. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 4. Concrete Temperature: Test hourly when air temperature is 40 degrees F (4 degrees C) and below, and when 80 degrees F (27 degrees C) and above; and each time a set of compression test specimens made.
 5. Compression Test Specimen: ASTM C 31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
 6. Compressive Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 - a. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - b. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 - c. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- C. Test results will be reported in writing to Architect, Structural Engineer and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.
- D. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests.

3.10 CLEAN-UP

- A. Immediately after completion of concrete operations, remove from site all debris resulting from work.
- B. Immediately prior to final inspection, preliminary to acceptance, wash and clean all exterior concrete wearing surfaces and interior uncovered wearing surfaces. Leave all concrete in clean, acceptable condition.

END OF SECTION 033000

SECTION 064023 – SOLID SURFACE COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Solid-surfacing-material countertops
- B. Related Sections include the following:
 - 1. Section 133430 – Permanent Grandstands

1.3 SUBMITTALS

- A. Product Data: For solid-surfacing material.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples for Verification:
 - 1. Solid-surfacing materials, 6 inches (150 mm) square.

1.6 QUALITY ASSURANCE

- D. Installer Qualifications: Fabricator of products.
- E. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers.

1.8 PROJECT CONDITIONS

- F. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.9 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Solid-Surfacing Material (SS-1): Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Corian Quartz or approved equal.
- B. Thermoset Decorative Overlay: Decorative surface of thermally fused polyester or melamine-impregnated web, bonded to specified substrate and complying with ALA 1992.

2.2 SOLID-SURFACE-MATERIAL COUNTERTOPS

- A. Configuration: Provide countertops with configuration shown on Drawings.
- B. Countertops: 3/4-inch thick, solid surface material with front edge built up with same material as indicated on the Drawings.
- C. Solid-Surfacing Material (SS-1): Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Basis of Design: Corian Quartz or approved equal.
 - 2. Colors and Patterns: As indicated on Architectural Drawings
- D. Fabrication: Fabricate tops in one piece with shop-applied edges unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

2.3 MISCELLANEOUS MATERIALS

- A. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

- B. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- C. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and that comply with LEED thresholds provided in Section 018113:
 - 1. Wood Glues: 30 g/L.
 - 2. Contact Adhesive: 250 g/L.

2.4 FABRICATION, GENERAL

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

3.2 INSTALLATION

- A. Countertops: Anchor securely by screwing through corner blocks of framing provided by bleacher/press box manufacturer.
 - 1. Install countertops with no more than 1/8 inch in 96-inch (3 mm in 2400-mm) sag, bow, or other variation from a straight line.
 - 2. Calk space between counter and wall with sealant.

END OF SECTION 064023

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For adhesives, indicating VOC content.
2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
3. Product Data: For sealants, indicating VOC content.
4. Laboratory Test Reports: For sealants, indicating compliance with requirements for low-emitting materials.
5. Laboratory Test Reports: For resilient base and stair products and accessories, indicating compliance with requirements for low-emitting materials.
6. Environmental Product Declaration: For each product.
7. Third-Party Certifications: For each product.
8. Third-Party Certified Life Cycle Assessment: For each product.

C. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches (300 mm) long.

D. Product Schedule: For resilient base and accessory products. Use same designations indicated on Drawings.

1.3 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

1.5 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Verify products comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.2 VINYL BASE (RB-1):

- A. Manufacturers: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Johnsonite; A Tarkett Company. (Basis of Design)
- B. Product Standard: ASTM F1861, Type TV (vinyl, thermoplastic).
 - 1. Group: I solid, homogeneous.
 - 2. Style and Location:
 - a. Cove Base:
- C. Thickness: 0.125 inch (3.2 mm)
- D. Height: 4 inches (102 mm).

- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Colors: Architect to select from full range of manufacturer standard colors.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
 - 1. Adhesives shall have a VOC content of 50 g/L or less.
 - 2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.
- H. Job-Formed Corners:
 - 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.
 - a. Form without producing discoloration (whitening) at bends.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

3.4 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.
 - 1. Apply one coat.
- E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096519 –RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Enhanced resilient floor tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 1. Show details of special patterns.
- C. Samples for Verification: Full-size units of each color and pattern of floor tile required.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store floor tiles on flat surfaces.

1.8 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F (18 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 RESILIENT FLOOR TILE (LVT-1):

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Interface, Brushed Lines or approved equal.
- B. Wearing Layer: 22 mil
- C. Thickness: 4.5 mm.
- D. Size: 25 cm x 1 m (9.845" x 39.38")

- E. Colors and Patterns: as indicated on drawings.
- F. Moisture compliance requirements: Moisture barrier mitigation underlayment products to be installed prior to installation of sheet goods as indicated below under "Installation Materials".

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Moisture Barrier Mitigation (provide in base bid, perform moisture testing to determine if required): Basis of Design Product as recommended by manufacturer above.
- C. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles in pattern of colors and sizes indicated on Drawings.
- C. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- D. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- F. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- G. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

1. Apply two coat(s).
- E. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 133430 – PERMANENT GRANDSTANDS

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

- A. Provide labor, material, equipment and supervision necessary to complete installation of permanent steel grandstand, including the following:
 - 1. Steel Substructure
 - 2. Decking System
 - 3. Concrete Foundation
 - 4. Press Box Support Structure
 - 5. Press Box

1.02 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturers must have ten years of experience in the manufacture of bleachers and grandstands; manufacturer must exhibit proof of business existence for past five years with documentation; welders must be AWS certified.
- B. Installer Qualifications: Experienced in the proper installation of grandstands.
- C. Source Quality Control: Mill Test Certification.

1.03 SUBMITTALS

- A. Manufacturer's Product Data: Submit manufacturer's descriptive product data for project.
- B. Shop Drawings: Manufacturer to submit shop drawings sealed by a registered engineer and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the applicable code and relevant laws.
- C. Certificates:
 - 1. Insurance Certificate
 - 2. Bid Bond
- D. Product Sample: Submit one 18-inch seat sample.
- E. Color Sample: If applicable, submit sample.

1.04 SITE CONDITIONS

- A. Field Site:
 - 1. Owner to make site accessible.
 - 2. Owner to verify site locations, benchmarks.

- B. Underground Utility Line: Owner to clearly mark all underground utilities and obstructions and Owner to relocate all that conflict with grandstand.
- C. Soil Test: Furnished by Owner.

1.05 BUILDING CODES

- A. Must meet or exceed all State and Local applicable codes and in compliance with the International Building Code adopted by the jurisdiction and CABO/ANSI A117.1 Barrier Free Subcode.

1.06 WARRANTY

- A. Permanent Grandstand shall be under warranty for a period of one (1) year beginning at Date of Substantial Completion for Projects installed by Manufacturer. The warranty will provide for repair or replacement of failed components due to defect in materials and workmanship of installation for the specified period. This warranty excludes any other defects resulting from abnormal use in service, vandalism, weathering, oxidation, accidental or intentional damage or any occurrences beyond Manufacturer's control.

1.07 MAINTENANCE

- A. Owner is to conduct annual inspection and required maintenance of grandstand to assure safe conditions. It is also recommended that a professional engineer or registered architect perform inspections biennially.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Basis of Design or approved equal: Southern Bleacher Company (800) 433-0912. Horizontal Beam Design.

Other manufacturers seeking to be approved must submit product literature on horizontal beam design to the Owner for review and receive approval from Owner seven days prior to bid date.

2.02 PERMANENT STEEL GRANDSTAND

- A. Product Description
 1. Leg Truss Design: Gross seating capacity of 1,120, 14 rows and 120 feet long. Press Box Support Structure 8' x 60'. Press Box 8' x 42'.
 2. Vertical columns are placed 6 feet 0 inches on center laterally and 16 feet on center front to back.
 3. Stringers are wide flange with steel angle rise and depth fabrication and are placed 6 feet on center.

4. Front Walkway:
 - a. Clear width 74 inches.
 - b. Elevated 5 feet above grade at benchmark.

5. Entry stairs to be firmly anchored to uniformly poured concrete bases.
 - a. Stair rise: 6 inches with aluminum closure and contrasting aluminum stair nose.
 - b. Stair tread depth: 11 inches.
 - c. Guardrails: As required by code.

 - d. Stairs to have handrail extension. The handgrip portion of handrails shall not be less than 1 1/2 inches or more than 2 inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface. The handgrip portion of handrails shall have a smooth surface with no sharp corners. The top of handrails and handrail extensions shall be placed not less than 34 inches or more than 38 inches above the nosing of treads and landings. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. Ends shall be returned or shall terminate in newel posts or safety terminals.

8. Aisles:
 - a. Aisles with seating on both sides to have discontinuous mid-aisle handrails. The handrails shall be discontinuous with breaks at intervals not to exceed five rows. These breaks shall have a clear width of at least 22 inches and not greater than 36 inches horizontally.
 - b. Anodized aluminum handrails with rounded ends to be provided with an intermediate handrail below the main handrail.
 - c. Aluminum tread nosing of contrasting color on aisle steps.
 - d. Halfsteps shall be provided for riser heights above 8 inches.
 - e. Halfsteps shall provide equal rise and run throughout aisle. Each shall have aisle nosing with non-skid black powder coated finish or other paint system meeting AAMA 603.8-92 specifications with a hardness rating of 2H and riser closure with clear anodized finish.
 - f. Aisles with a riser height of non-uniformity shall be indicated with distinctive markings as required by code.

9. Decking:
 - a. Rise per row 13 inches, depth per row 33 inches.
 - b. Each seat 17 inches above its respective tread.
 - c. Mill Aluminum Decking Arrangement INTERLOCK Aluminum Decking System
 - d. Seating Selection
 - (1) Anodized Aluminum Bench Seat
 - (a) 2 x 10 (standard), Die #7758 with height of 1 1/2".

10. Guardrailing: To be at all sides of bleacher, entry stairs and ramps, portals, and landings. Railing to be anodized aluminum with end plugs at ends of straight runs and/or elbows at corner. All guardrails shall be secured to angle rail risers by galvanized fasteners. Railing shall be at heights as required by code for its location on the grandstand. Guardrailing shall include intermediate

railing, or galvanized chain link fencing fastened in place with galvanized fasteners and aluminum ties.

11. Ramps:
 - a. Slope: 1 in 12.
 - b. Guardrails: As required by code plus toeboard.
 - c. Handrail: Ramps to have handrail extension. The handgrip portion of handrails shall not be less than 1 1/2 inches or more than 2 inches in cross-sectional dimension or the shape shall provide an equivalent gripping surface. The handgrip portion of handrails shall have a smooth surface with no sharp corners. The top of handrails and handrail extensions shall be placed not less than 34 inches or more than 38 inches above the ramp surface. Where handrails are not continuous between runs, the handrail shall extend horizontally above the landing 12 inches minimum beyond the top and bottom ramps. Ends shall be returned or shall terminate in newel posts or safety terminals.
12. Handicap provision:
 - a. Quantity of wheelchair spaces: 9
 - b. Riser area adjacent to wheelchair spaces to have intermediate construction so 4 inch sphere cannot pass through opening.

B. Materials/Finishes

1. Substructures:
 - a. Structural shapes meet one of the following ASTM specifications: A36, A36/A572 grade 50, A572 grade 50, A529-50, or A500 grade B.
 - b. Shop connections are seal welds.
 - c. After fabrication, all steel is hot-dipped galvanized to ASTM-A-123 specifications.
 - d. Painted steel finish is unacceptable.
2. Extruded Aluminum:
 - a. Seat Planks, Backrests, Stanchions, Riser Planks, Front Façade, and Railing are extruded aluminum alloy, 6063-T6.
 - (1) Clear anodized 204R1, AA-M10C22A31, Class II finish
 - (2) Coating (Optional with additional cost):
 - (a) Factory applied, baked-on Kynar or Hylar/acrylic resin based paint coating, Dur-Kyn, as manufactured by the Valspar Corporation. Dur-Kyn meets or exceeds the physical and performance properties of AAMA 2603. (Specify color).
 - (b) Powder Coated or other paint system meeting AAMA 603.8-92 specifications with a hardness rating of 2H. (Specify Color).
 - b. Tread planks are extruded aluminum alloy 6063-T6 mill finish.
 - c. Railing: Extruded aluminum alloy, 6063-T6 clear anodized 204R1, AA-M10C22A31, Class II.
3. Accessories:
 - a. Channel End Caps: Aluminum alloy 6063-T6, clear anodized 204R1, AA-M10C22A31, Class II.
 - b. Cast End Caps: Aluminum 319 alloy, cast finish. (Required for backrest and RS plank only)
 - c. Hardware:
 - (1) Bolts, Nuts: Hot-dipped galvanized or mechanically galvanized.
 - (2) Hold-down Clip Assembly: Aluminum alloy 6005A-T6, mill finish.

- (3) Structural Hardware: Equal to or greater than hot-dipped galvanized ASTM-A307. No connections utilizing high strength bolts are classed as slip critical.
 - d. Aisle Nose and Stair Nose: Aluminum alloy, 6063-T6, non-skid black powder coated finish or other paint system meeting AAMA 603.8-92 specifications with a hardness rating of 2H.
- C. Fabrication:
- 1. Design Load:
 - a. Tread and Seat Area: 100 psf uniform live load.
 - b. Seat (Vertical): 120 lbs/lf.
 - c. Seat (Horizontal Sway): 24 lbs/lf parallel and 10 lbs/lf perpendicular to seat.
 - d. Handrail and Guardrail: 50 lbs/lf in any direction.
 - e. Handrail and Guardrail: 200 lbs concentrated in any direction.
 - f. Snow Loads: As per State adopted code.
 - g. Wind Loads: As per State adopted code.
 - h. Seismic Loads: As per State adopted code.
 - 2. All manufactured connections to be shop welded.
 - a. Manufactured by certified welders conforming to AWS Standards.

2.03 PRESS BOX WITH METAL STRUCTURE

- A. Product Description: Type II Construction
- 1. Press Box Support Structure: Independently supported but connected to rear of grandstand. Support Structure to be 8 feet wide x 60 feet long with 9 foot landing on both end(s).
 - 2. Press Box Dimensions: 8 feet wide x 42 feet long.
 - 3. Filming Area/Observation Deck located on Press Box roof.
 - 4. Press Box to be of open construction, allowing inspection of electrical wiring, switches and other components without destructive disassembly.
- B. Materials/Finishes
- 1. Press Box Support Structure:
 - a. Structural shapes meet one of the following ASTM specifications: A36, A36/A572 grade 50, A572 grade 50, A529-50, or A500 grade B.
 - b. Shop connections are seal welds.
 - c. After fabrication, all steel is hot-dipped galvanized to ASTM-A-123 specifications.
 - 2. Press Box: All materials shall be new and shall comply with ASTM specifications.
 - a. Floor
 - (1) Main support to be a galvanized steel floor frame sized to support structure and metal belly pan for support of insulation.
 - (2) Floor to be INTERLOCK Aluminum Decking System, extruded aluminum alloy 6063-T6, mill finish. Attach Decking System to steel floor frame with mechanical fasteners at end of plank and at intermediate supports. (Tongue & Groove or Standard extrusion is not acceptable.)

- (3) Insulation: Poly-encapsulated Formaldehyde-free fiberglass building insulation R-13, 3 1/2 inches thick. Batt or roll as manufactured by Johns Manville, or equal.
- b. Wall Structure
- (1) 4 inch x 4 inch x 11 gauge square tubing with maximum span of 14 feet on front wall and maximum span of 6 feet on back wall and 4 inch x 2 1/2 inch x 14 gauge steel "cees" with maximum spacing of 5 feet for all walls with siding. Spans greater than these require engineered calculations for design.
 - a) Steel framing shapes to meet one of the following ASTM's, A500 Grade A or B 45 ksi, A36 50ksi, A1011 CS Type B.
 - (2) Insulation: Poly-encapsulated Formaldehyde-free fiberglass building insulation R-13, 3 1/2 inches thick. Batt or roll as manufactured by Johns Manville or equal.
 - (3) Interior Finish
 - (a) 1/2 or 5/8 inch vinyl coated gypsum panels (as required), Gold Bond vinyl-surfaced Durasan.
 - (b) Cove Base: Vinyl 4 inches x .080.
 - (c) Submit color samples of standard base for review by Owner/Architect.
 - (4) Exterior Finish
 - (a) 26 gauge prefinished R-Panel paneling as manufactured by MBCI, Signature 200 color series, or equal.
 - (b) Wall panels are attached with #12 TEK screws - 6" O.C. at the top, midpoint and bottom of the panels.
 - (d) Lap screws are placed at each end of the panels, at the intermediate supports, and at the mid point between supports (TEK #14).
 - (e) All fasteners to be painted same color as exterior paneling.
- c. Roof Structure
- (1) 4 inch x 4 inch x 11 gauge square tubing with maximum spacing of 6 feet on center and 4 inches x 2 1/2 inches x 14 gauge steel "cees" with maximum spacing of 2 feet on center.
 - (2) Roof: 1/8 inch fourway steel plate roof, continuous welded seams coated with acrylic metal primer as manufactured by Coronado and 36 mils of acrylink roof coating as manufactured by Isothermal Protective Coatings, or equal. Plate is welded on both sides of rafters with 1-1/2 inch long 1/8 inch fillet welds on 12 inch centers.
 - (3) Insulation: Poly-encapsulated Formaldehyde-free fiberglass building insulation, R-19 (minimum) 6 inches thick. Batt or roll as manufactured by Johns Manville or equal.
 - (4) Cornice: 26 gauge steel prefinished to match metal siding.
 - (5) Ceiling: 24 inch x 24 inch x 5/8 inch acoustical lay in ceiling tile with removable tiles, per 2006 IBC or local code, applicable category per seismic zone, (in California per 2007 CBC, applicable category per seismic zone, ref. DSA IR 25-5).
- d. Exterior Door(s)

- (1) Full flush steel construction with hollow or polystyrene core. 18 gauge skin sheets. Dimensions: 3 feet 0 inches x 6 feet 8 inches. Color: Coordinated with press box siding color.
 - (2) Steel door frame (16 gauge) complete with 1/2 inch threshold and weather-stripping.
 - (3) Exterior Hardware: Yale 546F Exterior Trim, or equal. Handles shall be lever type that allow operation without tight grasping or twisting of the wrist. Keyed alike locks.
 - (4) Interior Hardware: Yale 2100 Exit Device, or equal. Handle shall be panic bar that allows for opening without any grasping, twisting or turning.
- e. Interior Doors
- (1) Interior Hollow Core Birch Unit. Dimensions: 3 feet 0 inches x 6 feet 8 inches.
 - (2) Submit color samples for review by Owner/Architect.
 - (3) Hardware: Handles shall be lever type that allow operation without tight grasping or twisting of the wrist.
- f. Interior Walls
- (1) Framing to be steel galvanized studs (25 gauge) 1 1/4 inch x 3 5/8 inch or 4 inch at maximum 2 feet on center.
 - (2) Finishes to be consistent with all other interior finishes.
- g. Windows
- (1) Frame: Extruded aluminum single hung, vertical sliding unit, thermal break.
 - (2) Sash: Tilt toward inside for easy cleaning.
 - (3) Glazing: Clear tempered panes.
 - (4) Dimensions of each unit: Dependent on compartment size. At interior wall locations or structural support locations the dimension between windows shall be no greater than 6 inches.
 - (5) Finish: Electrostatically applied acrylic enamel.
- h. Work Bench
- (1) Solid Surface Countertop (See section 064023 – Solid Surface Countertop) supported by 4 inch x 2 1/2 inch x 14 gauge steel. Countertops heights shall be constructed to allow wheelchair usage at all locations.
- i. Painting: Materials equal to Coronado, or equal.
- (1) Surfaces: Exterior Door(s), Door Frame(s)
 - (a) Primer: Applied by Door Manufacturer.
 - (b) Finish: 2 coats acrylic latex semi-gloss enamel applied by press box manufacturer.
 - (2) Surfaces: Interior Doors (if applicable)
 - (a) Primer: Jones Blair Interior Exterior Oil Primer, or equal.
 - (b) Finish: 2 coats acrylic latex semi-gloss enamel.
 - (3) Surfaces: Exterior Siding
 - (a) Primer: Applied by Siding Manufacturer.
 - (b) Finish: Applied by Siding Manufacturer.
 - (c) Touchup: If applicable
 - (4) Surfaces: Wall and Roof Structure

- (a) Primer: Coronado DTM Industrial 180-11 acrylic metal primer applied after welding, or equal.
- j. Caulking: Sonneborn NP1 – Polyurethane sealant, All temperature, UV resistant, or equal. Silicone products are not acceptable.
- k. Electrical
 - (1) Submittal drawing shall indicate devices and circuitry.
 - (2) Fixtures: 2-lamp, 58 or 64 watt fluorescent, 2' x 4' lay-in design as manufactured by Lithonia Lighting, or equal. Fixtures shall be located above countertop and be maximized to full length of compartment space.
 - (3) Wiring to be in EMT, flexible metal conduit or surface raceway. N.E.C. breaker panel to be 100 amp flush or surface mounted on wall with 1 1/4 inch conduit stubbed out bottom of press box or 2 inch rigid conduit to be stubbed out at back wall of press box ready for service line to be connected. (Service line to Press Box is responsibility of Owner).
 - (4) Electrical outlet(s) installed per NEC shall be standard duty. All outlets shall be surface or flush mounted.
 - (5) Sound, Telephone, Clock, Field Communication: Empty single or double outlet boxes (as required) per N.E.C. with 3/4 inch conduit stubbed out bottom of Press Box for use of Owner. Outlet boxes to be flush mounted into wall. Any wiring completed on-site will be responsibility of such contractor for inspections. Quantity. Two will be provided. Owner shall indicate additional boxes needed.
 - (6) Filming Area/Observation Deck: Weathertight outlet box for cameras. Quantity: One. Owner shall indicate additional outlets needed.
- l. Filming Area/Observation Deck
 - (1) Exterior Access: Stairs up to roof shall run along back wall of press box with support of same being provided by extended landing platform at bottom and by stub beam attached to press box back wall at top of stairs. No supports from grade are required.
 - (2) Roof guardrailing to be 42" above walking surface around perimeter of deck attached to 5/8 inch galvanized studs to be welded to roof support structure. The guardrailing to include anodized aluminum with 9 gauge galvanized chain link fencing fastened in place with galvanized fasteners and aluminum ties.

2.04 WARRANTY

- A. The Press Box shall be under warranty for a period of one (1) year beginning at Date of Substantial Completion for projects installed by Manufacturer. The Press Box is warranted to be free from defect in materials and workmanship in the course of manufacture. This warranty excludes any other defects resulting from abnormal use in service, accidental or intentional damage or any occurrences beyond manufacturer's control.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All work performed by technicians experienced in bleacher seating installation.

- B. Project as per approved shop drawings.

3.02 FIELD QUALITY CONTROL

- A. Foundation: Footings for the grandstand shall provide sufficient bearing area at bottom to support all loads of the grandstand. Depth and design of footings shall be determined by Owner supplied soil test. Hot-dipped galvanized anchor bolts shall be secured in the concrete footings. Concrete shall attain working strength of 3,000 psi.

3.03 CLEAN-UP

- A. Clean up all debris caused by work of this section.
- B. The Owner, Architect and Contractor acknowledge and accept that mill finish aluminum as specified will have water stains present from transportation and storage during installation. Removal of these stains is not part of this contract.
- C. Stand to be broom cleaned at completion.

END OF SECTION 13125

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 IMPOSED REGULATIONS

- A. Applicable provisions of the State and Local Codes and of the following codes and standards in addition to those listed elsewhere in the specifications are hereby imposed on a general basis for electrical work: codes and standards listed on the electrical drawings.

1.2 SCOPE OF WORK

- A. Provide all labor, materials, equipment and supervision to construct complete and operable electrical systems as indicated on the drawings and specified herein. All materials and equipment used shall be new, undamaged and free from any defects.

1.3 RELATED DOCUMENTS AND OTHER INFORMATION

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the portions of work specified in each and every Section of this Division, individually and collectively.

1.4 EXISTING SERVICES AND FACILITIES

- A. **Damage to Existing Services:** Existing services and facilities damaged by the Contractor through negligence or through use of faulty materials or workmanship shall be promptly repaired, replaced, or otherwise restored to previous conditions by the Contractor without additional cost to the Owner.
- B. **Interruption of Services:** Interruptions of services necessary for connection to or modification of existing systems or facilities shall occur only at prearranged times approved by the Owner. Interruptions shall only occur after the provision of all temporary work and the availability of adequate labor and materials will assure that the duration of the interruption will not exceed the time agreed upon.
- C. **Removed Materials:** Existing materials made unnecessary by the new installation shall be stored on site. They shall remain the property of the Owner and shall be stored at a location and in a manner as directed by the Owner. If classified by the Owner's authorized representative as unsuitable for further use, the material shall become the property of the Contractor and shall be removed from the site at no additional cost to the owner.

1.5 PRODUCT WARRANTIES

- A. Provide manufacturer's standard printed commitment in reference to a specific product and normal application, stating that certain acts of restitution will be performed for the Purchaser or Owner by the manufacturer, when and if the product fails within certain operational conditions and time limits. Where the warranty requirements of a specific specification section exceed the manufacturer's standard warranty, the more stringent requirements will apply and modified manufacturer's warranty shall be provided. In no case shall the manufacturer's warranty be less than one (1) year.

1.6 PRODUCT SUBSTITUTIONS

- A. General: Materials specified by manufacturer's name shall be used unless prior approval of an alternate is given by addenda. Requests for substitutions must be received in the office of the Engineer at least 10 days prior to opening of bids.

1.7 ELECTRICAL DRAWINGS

- A. Electrical contract drawings are diagrammatic and indicate the general arrangement of electrical equipment. Do not scale electrical plans. Obtain all dimensions from the Architect's dimensioned drawings and field measurements. The Contractor shall review Architectural plans for door swings and built-in equipment; conditions indicated on those plans shall govern for this work.
- B. Coordinate installation of electrical equipment with the structural and mechanical equipment and access thereto. Coordinate exterior electrical work with civil and landscaping work.
- C. Discrepancies shown on different drawings, between drawings and specifications or between documents and field conditions shall be installed to provide the better quality or greater quantity of work; or, comply with the more stringent requirement; either or both in accordance with the A/E's interpretation.

1.8 SYSTEMS REQUIRING ROUGH-IN

- A. Rough-in shall consist of all outlet boxes/raceway systems/supports and sleeves required for the installation of cables/devices by other Divisions and by the Owner. It shall be the responsibility of this Contractor to determine the requirements by reviewing the contract documents and meeting with the Superintendent of the trade involved and Owner's representative to review submittal data, shop drawings, etc.
- B. Sealing of all sleeves, to meet the fire rating of the assembly, whether active or not, is work of this Division.

1.9 SUBMITTALS

- A. Refer to section 260510

PART 2 - EXECUTION

2.1 PRODUCT INSTALLATION, GENERAL

- A. Except where more stringent requirements are indicated, comply with the product manufacturer's installation instructions and recommendations, including handling, anchorage, assembly, connections, cleaning and testing, charging, lubrication, startup, test operation and shut-down of operating equipment. Consult with manufacturer's technical experts, for specific instructions on unique product conditions and unforeseen problems.

- B. Protection and Identification: Deliver products to project properly identified with names, models numbers, types, grades, compliance labels and similar information needed for distinct identifications; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the manufacturer specifically for exterior storage.
- C. Permits and Tests: Provide labor, material and equipment to perform all tests required by the governing agencies and submit a record of all tests to the Owner or his representative. Notify the Architect five days in advance of any testing.
- D. Install temporary protective covers over equipment enclosures, outlet boxes and similar items after interiors, conductors, devices, etc. are installed, to prevent the entry of construction debris and to protect the installation during finish work performed by others. Do not install device plates, equipment covers or trims until finish work is complete.
- E. Clean all equipment, inside and out, upon completion of the work. Scratched or marred surfaces shall be touched-up with touch-up paint furnished by the equipment manufacturer.
- F. Replace all equipment and materials that become damaged.
- G. No more than three phase conductors, each of opposite phases for a three phase WYE system, shall be combined in a single raceway unless written approval is granted by the engineer or noted otherwise on the construction documents. (For 120 volt and 277 volt receptacle and lighting circuits are no more than 3 circuits unless written approval is granted by the engineer or noted otherwise on the construction documents.)

2.2 LOW VOLTAGE CABLING SEPARATION FROM EMI SOURCES

- A. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
- B. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches
- C. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches
- D. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - 1. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches
 - 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches

- E. Separation between Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches
- F. Separation between Cables and light fixtures: A minimum of 5 inches

2.3 EQUIPMENT PROTECTION

- A. Equipment and materials shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.
- B. During installation, equipment shall be protected against entry of foreign matter; and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.
- C. Damaged equipment shall be, as determined by the Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.
- D. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
- E. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

2.4 ELECTRICAL WORK:

- A. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:
 - 1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
 - 2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.
 - 3. Before initiating any work, a job specific work plan must be developed by the contractor with a peer review conducted and documented by the Contractor. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used and exit pathways. This plan is subject to review and comment by the owner.
- B. Nothing in the above shall impose any duty on the Architects and Architect's consultants, nor relieve the General Contractor and its subcontractors of its obligations, duties and responsibilities including but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending and coordinating the

Electrical Work in accordance with the Contract Documents and any health or safety precautions required by any regulatory agencies.

END OF SECTION 260500

SECTION 260501 - ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 Not Used

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Field verify measurements and circuiting arrangements are as shown on Drawings.
- B. Report discrepancies to Engineer before disturbing existing installation.
- C. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

- A. Provide temporary wiring and connections to maintain existing systems in service during construction.
- B. When work must be performed on energized equipment or circuits, use personnel experienced in such operations, submit verification of compliance with the contractor's safety procedures to the Architect, and notify the Owner in writing a minimum of 24 hours prior to work.
- C. The existing television, telephone, computer data, intrusion detection and intercom system shall remain operable during construction. Plan and execute the work accordingly. Provide temporary wiring and facilities as may be required.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Maintain electrical service to areas outside of the construction area.
- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Repair adjacent construction and finishes damaged during demolition and extension work.
- D. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
- E. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.4 CUTTING AND PATCHING

- A. Structural Limitations: Do not cut structural framing, walls, floors, decks, and other members intended to withstand stress, except with the Engineer's written authorization. Authorization will be granted only when there is no other reasonable method for completing the electrical work, and where the proposed cutting clearly does not materially weaken the structure.
- B. Cutting Concrete: Where authorized, cut openings through concrete (for conduit penetrations and similar services) by core drilling or sawing. Do not cut by hammer-driven chisel or drill. Prior to cutting of existing concrete walls, floors, or ceilings x-ray existing concrete to locate existing hidden utilities.
- C. Other Work: Do not endanger or damage other work through the procedures and process of cutting to accommodate electrical work. Review the proposed cutting with the Installer of the work to be cut, and comply with his recommendations to minimize damage. Where necessary, engage the original Installer or other specialists to execute the cutting in the recommended manner.
- D. Patching: Where patching is required to restore other work, because of cutting or other damage inflicted during the installation of electrical work, execute the patching in the manner recommended by the original Installer. Restore the other work in every respect, including the elimination of visual defects in exposed finished, as judged by the Engineer. Engage the original Installer to complete patching of various categories of work including: concrete and masonry finishing, waterproofing and roofing, exposed wall finishes, etc.

3.5 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment that remain or that are to be reused.
- B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions.

3.6 LABELING

- A. Provide typed circuit directory showing revised circuiting arrangement.
- B. Provide and install a new engraved nameplate for all electrical panels that have been modified during construction. Refer to the panelboard specification section for labeling requirements.

END OF SECTION 260501

SECTION 260502 - ELECTRICAL ACCEPTANCE TESTS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 References

- A. ANSI/NETA ATS, “Standard for Acceptance Testing Specifications, current edition.

1.3 SCOPE OF WORK

- A. Acceptance tests shall be performed in accordance with the current version of ANSI/NETA ATS
- B. Tests shall be performed by an independent testing agency.
- C. Tests shall be performed in accordance with applicable codes, standards, and equipment manufacturers' instruction.
- D. The Contractor shall provide all test equipment, materials and labor necessary to perform the tests, and shall coordinate with the other trades for necessary services.
- E. Tests shall consist of visual inspections, manual operations, and electrical testing under all normal and expected abnormal operating conditions.
- F. The Owner shall be notified at least 2 weeks in advance of all tests.
- G. Tests shall be witnessed by the Engineer unless such witnessing is waived in writing.
- H. The Engineer shall be provided with a written test report, signed and dated, for all tests.
- I. Acceptance testing shall be provided and reviewed by the Engineer prior to energizing of electrical equipment. Phasing may require multiple trips/tests/reports and after hours work.

1.4 TESTING CRITERIA

- A. High potential tests shall be performed at the AC or DC voltage listed in ANSI/NETA ATS unless specified otherwise herein. Do not perform more than one high potential test on any item without authorization from the Owner.
- B. Dielectric absorption tests shall be performed with a 2,500 volt DC megger.
- C. Megger tests shall be performed at a DC voltage of 1,000 volts for 600 volt rated equipment, and at a DC voltage of 500 volts for 120-300 volt rated equipment.
- D. Continuity checks shall be performed with a low voltage DC meter, light or bell.

- E. The resistance to ground shall be measured using either the three point method or the fall of potential method.
- F. Test instruments shall be calibrated to national standards to ensure the accuracy of tests. These calibration reports shall be made available to the Owner when requested. Depending upon frequency of use, the instruments shall be calibrated at least every 12 months.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 VISUAL INSPECTIONS

- A. Prior to manual operation and electrical testing, verify the following:
 - 1. The equipment is free from damage and defects.
 - 2. The equipment has been lubricated.
 - 3. Electrical connections have been tightened.
 - 4. Voltages, phases, and rotation have been identified.
 - 5. Terminations have been identified.
 - 6. Equipment labels have been installed.
 - 7. The equipment has been calibrated.
 - 8. The equipment is ready to be electrically tested

3.2 MANUAL OPERATIONS

- A. Prior to electrical testing, verify the following:
 - 1. Mechanical components operate smoothly and freely.
 - 2. Mechanical stops, limit switches, etc., are properly adjusted.

3.3 ELECTRICAL ACCEPTANCE TESTS

- A. Duct Banks
 - 1. A stiff bristled brush shall be pulled through each duct to clean out dirt and debris.
 - 2. A solid mandrel rated for the inside diameter of the ducts and at least 5 inches long shall be pulled through each duct to verify the absence of kinks, flat spots, and other obstructions.
- B. 600 Volt Power Cables
 - 1. A continuity check and a 1,000 volt DC megger test shall be performed on 600 volt power cables No. 4 AWG and larger. The megger test shall be performed between each pair of conductors and from each conductor to ground. Each test shall be performed for 15 seconds or until the insulation resistance value stabilizes.
 - 2. The insulation resistance between conductors, and from each conductor to ground, shall be 100 megohms minimum in one minute or less. In addition, the lowest insulation resistance value shall not differ from the highest value by more than 20 percent. If all megger readings for a given circuit are above 1000-megohms, the 20 percent balance requirement may be waived.
 - 3. Proper rotation shall be verified.
- C. Control Cable

1. A continuity check shall be performed on control and instrumentation wiring.

D. Transformers and Panelboards

1. A continuity check and a 1,000 volt DC megger test shall be performed on distribution and isolation transformers, and on line reactors.
2. A 1,000 volt DC megger test shall be performed on buses, and circuit breakers. This test may be combined with the power cable megger test by testing the devices and terminated cables together.
3. A continuity check shall be performed on control panel internal wiring.
4. Measure the resistance of each winding at each tap connection.
5. Overpotential test on all high- and low-voltage windings-to-ground.

E. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard, transformer, and enclosed Bus. Remove all access panels so joints and connections are accessible to portable scanner.

1. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
2. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

F. Grounding

1. Upon completion of installation of electrical grounding system, test resistance of each ground rod installation using the "Fall of Potential" method. Ground resistances shall be measured in normally dry conditions not less than 48 hours after rainfall and at low tide. Where tests show resistance to ground is over the specified value, take appropriate action to reduce resistance by driving additional sections of ground rods and then retest to demonstrate compliance. Tests shall be conducted in the presence of the Project Electrical Engineer. Provide forms to record the data as the tests are conducted. Forms shall be signed by the person conducting the test and included with project closeout documents.

END OF SECTION 260502

SECTION 260510 – ELECTRICAL SUBMITTALS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- A. Comply with the applicable requirements of the Division 1 specifications (013300) and the requirements of this Division of the specifications.

1.2 SUBMITTALS

- A. Submit for review by the Engineer Architect a schedule with engineering data of materials and equipment to be incorporated in the work. Submittals shall be supported by descriptive materials, i.e., catalog sheets, product data sheets, diagrams, performance curves and charts published by the manufacturer, warranties, etc., to show conformance to Specifications and Plan requirements; model numbers alone shall not be acceptable. Data submitted for review shall contain all information to indicate compliance with Contract Documents. Complete electrical characteristics shall be provided for all equipment. Submittals for lighting fixtures shall include Photometric Data. The Engineer reserves the right to require samples of any equipment to be submitted for review.
- B. The purpose of shop drawing review is to demonstrate to the Architect that the Contractor understands the design concept. The Architect's review of such drawings, schedules, or cuts shall not relieve the Contractor from responsibility for deviations from the drawings or specifications unless he has, in writing, called the Architect's attention to such deviation at the time of submission, and received written permission from the Architect for such deviations.
- C. Where cut sheets include an entire product family, mark all specific items to be utilized for this project on equipment cut sheets. Generic cut sheets with no indication of which items on the cut sheet shall be used will be rejected.
- D. Response to Submittals: Shop drawings shall be returned by the Electrical Engineer with the following classifications:
 - 1. "No Exceptions Taken": No corrections, no marks. Contractor shall submit copies for distribution
 - 2. "Make Corrections Noted": A few minor corrections. Items may be ordered as marked up without further resubmission. Submit copies for distribution.
 - 3. "Amend and Resubmit": Minor corrections. Item may be ordered at the Contractor's risk. Contractor shall resubmit drawings with corrections noted.
 - 4. "Rejected - Resubmit": Major corrections or not in accordance with the contract documents. No items shall be ordered. Contractor shall correct and resubmit drawings.
- E. Prior Approvals and Shop Drawings must be hand delivered, received by mail, or email.
- F. Equipment and materials requiring submittals:

1. Section 260500 – Common Work Results for Electrical
 - a. Product Warranties
2. Section 260502 – Electrical Acceptance Tests
 - a. Test Reports
 - b. Testing Company Qualifications.
3. Section 260511 – Electrical Work Closeout
 - a. Record Drawings
 - b. Record Manuals
 - c. Close out submittals
 - d. Training verification
4. Section 260512 – Electrical Coordination
 - a. Electrical Coordination Drawings
5. Section 260519 – Low-Voltage Electrical Conductors and Cables
 - a. Product data
6. Section 260526 – Grounding and Bonding for Electrical Systems
 - a. Ground Rods
 - b. Grounding Connections
 - c. Ground Wire
 - d. Field Quality Control Test Reports
7. Section 260529 – Hangers and Supports for Electrical Systems
 - a. Product Data
8. Section 260536 – Cable Trays for Electrical Systems
 - a. Product Data
 - b. Layout Drawings in 1/8" = 1' scale minimum
 - c. Connectors
 - d. Bracing
 - e. Ground Clamps
 - f. Accessories
9. Section 260533 – Raceway and Boxes for Electrical Systems
 - a. Raceway
 - b. Boxes
 - c. Enclosure ratings
 - d. Corrosion Protection
10. Section 260543 – Underground Ducts and Raceways for Electrical Systems
 - a. Raceway
 - b. Handholes
 - c. Warning Tape
11. Section 260548 – Vibration and Seismic Controls for Electrical Systems
 - a. Submit seismic force level (Fp) calculations from applicable building code.
 - b. Submit pre-approved restraint selections and installation details

- c. Restraint selection and installation details shall be sealed by a professionally licensed engineer experienced in seismic restraint design.
 - d. Submit manufacturer's product data on strut channels including, but not limited to, types, materials, finishes, gauge thickness, and hole patterns. For each different strut cross-section, submit cross sectional properties including Section Modulus (Sx) and Moment of Inertia (Ix).
 - e. Field reports
12. Section 260553 – Identification for Electrical Systems
- a. Product data for all labeling products
 - b. Samples of device name plates
13. Section 262200 – Low Voltage Transformers
- a. Transformers
 - b. Enclosures
 - c. Mounting components
14. Section 262726 – Wiring Devices
- a. Product data
 - b. Device Plates
 - c. Weatherproof Covers
15. Section 262813 – Fuses
- a. Fuses
16. Section 262816 – Enclosed Switches and Circuit Breakers
- a. Product data
17. Section 264300 – Surge Protective Devices
- a. Installation instructions
 - b. Product data
 - c. Current Ratings
 - d. Clamping Voltages
 - e. Response Time
 - f. Enclosure
18. Section 265600 – Exterior Lighting
- a. Lighting Fixtures
 - b. Poles and Accessories
 - c. Time Clock

PART 2 - PRODUCTS

2.1 Not Used.

PART 3 - EXECUTION

3.1 MANUFACTURER'S DATA

- A. Include the manufacturer's comprehensive product data sheet and installation instructions. Where operating ranges are shown, mark data to show portion of range required for project application. Where pre-printed data sheet covers more than one distinct product-size, type, material, trim, accessory group or other variations, delete or mark-out portions of the pre-printed data which are not applicable.

3.2 EQUIPMENT LIST

- A. Where more than one type of a product is being used (i.e. starters, disconnects, breakers, etc.) provide a list with each submittal correlating the type and size of product to the load served.

3.3 TEST REPORTS

- A. Submit test reports which have been signed and dated by the firm performing the tests, and prepare in the manner specified in the standard or regulation governing the tests procedure as indicated.

END OF SECTION 260510

SECTION 260511 - ELECTRICAL WORK CLOSEOUT

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 RELATED SECTIONS

- A. Refer to section 017839 for additional requirements.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Except where otherwise indicated, electrical drawings prepared by Engineer are diagrammatic in nature and may not show locations accurately for various components of electrical system. Shop drawings, including coordination drawings, prepared by the Contractor show portions of work more accurately to scale and location, and in greater detail. It is recognized that actual layout of installed work may vary substantially from both Contractor drawings and shop drawings.
- B. The electrical superintendent shall maintain a white set of contract documents and shop drawings in clean, undamaged condition, for mark-up of actual installations which vary substantially from the work as shown. PDF or digital mark-ups is acceptable alternates Mark-up whatever drawings are most capable of showing installed conditions accurately. However, where shop drawings are marked, record a reference note on appropriate contract drawings. Mark with erasable pencil, and use multiple colors to aid in the distinction between work of separate electrical systems. These documents shall be used for no other purpose. In general, record every substantive installation of electrical work which previously is either not shown or shown inaccurately, but in any case record the following:
 1. Post all addenda prior to beginning work.
 2. Underground feeder conduits, both interior and exterior, drawn to scale and fully dimensioned.
 3. Work concealed behind or within other work, in a non-accessible arrangement.
 4. Mains and branches of wiring systems, with panelboards and control devices located and numbered, with concealed splices located, and with devices requiring maintenance located.
 5. Scope of each change order (C.O.), noting C.O. number.
- C. Upon each visit by the Architect/Engineer, the Contractor shall demonstrate that the record documents are being kept current, as specified hereinbefore.

2.2 RECORD MANUALS

- A. Record manuals shall include the following:
 1. Manufacturer's operation and maintenance manuals for:

- a. Light Fixtures
 - b. Circuit Breakers
 - c. Surge Protection Devices
 - d. Lighting Control Systems
2. Shop drawings, revised to reflect all review comments, supplemented with the installation instructions shipped with equipment.
 3. One copy of all panelboard directories.
 4. All field test Reports
 5. Electrical Contractor's Warranty
- B. Submit record manuals in quantities and in the format prescribed in the Division 1 specifications.

2.3 CLOSEOUT SUBMITTALS

- A. Software and Firmware Operational Documentation:
1. Software operating and upgrade manuals.
 2. Program Software Backup: On USB drive, complete with data files.
 3. Device address list.
 4. Printout of software application and graphic screens.

PART 3 - EXECUTION

3.1 SITE VISITS

- A. At all construction observations by the Architect/Engineer, the Contractor shall demonstrate to the Architect/ Engineer that all work is complete in accordance with the contract documents and that all systems have been tested and are fully operational. The Contractor shall furnish the personnel, tools and equipment required to inspect and test all systems.

3.2 TRAINING

- A. Train Owner's personnel on the operation and maintenance of the following systems:
1. Lighting Control Systems – 1 hour or as dictated by lighting control vendor
- B. Training shall not be conducted until system has been tested by the Contractor and is 100% operational. Refer to the individual specification sections for additional requirements.

END OF SECTION 260511

SECTION 260512 - ELECTRICAL COORDINATION

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

PART 2 - PRODUCTS

2.1 ELECTRICAL COORDINATION DRAWINGS

- A. Electrical Space: Provide layouts of all electrical rooms using the dimensions of equipment actually furnished. Locate all ducts and piping entering or crossing these spaces.
- B. Feeders over 100 Amps : The routing of main feeders is not shown on the drawings. Actual routing shall be determined by the contractor in accordance with the specifications and shall be coordinated with work by other trades. For underground lines, show all utility crossings.
- C. Drawing Format: Drawings shall be prepared at a scale of no less than 1/16"=1'-0" for feeder routes and 1/4"=1'-0" for electrical rooms/equipment yards. Drawing shall be titled to define Project Name, Drawing subject and date prepared. Drawings are to be prepared in AutoCAD 2007 or compatible software.

2.2 EQUIPMENT REQUIRING ELECTRICAL SERVICE

- A. Provide electrical connections for all electrically driven equipment. Final connections are electrical work, except as otherwise noted. Obtain a copy of the shop drawings of equipment. Review shop drawings to verify electrical characteristics and to determine rough-in requirements, final connection requirements, location of disconnect switch, etc. Notify the General Contractor if the information received is ambiguous or incomplete. Keep a copy of these shop drawings at the project site throughout the course of construction.
- B. Equipment to be connected includes, but is not limited to the following:
 - 1. Site Lighting
- C. The design of circuits for electrically driven equipment is based on the product of one manufacturer and may not be representative of all acceptable manufacturers. If equipment furnished has differing characteristics, make necessary adjustments to circuit components at no additional cost to the Owner, subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 COORDINATION OF MECHANICAL INSTALLATION:

- A. Attachment Number 1 shall be filled out and returned with shop drawing submittals. The intent of Attachment Number 1 is to ensure that the electrical requirements for equipment have been reviewed and coordinated by the Contractor. No electrical equipment shall be ordered, nor shall rough-in begin, before this coordination has taken place. This document

shall be returned appropriately marked whether or not any changes are deemed to be necessary by the contractor.

ATTACHMENT NO. 1

SHOP DRAWING COORDINATION AFFIDAVIT

I, the undersigned, certify that I have reviewed the equipment shop drawings for electrically driven equipment and that the accompanying electrical shop drawings reflect the requirements of the actual equipment to be furnished for use on this project. The following deviations from design drawings were required to serve the furnished equipment:

ITEM	CKT.DESIG.		BKR.SIZE		CONDUIT/WIRE		DISC.SIZE		STARTER	
	New	Old	New	Old	New	Old	New	Old	New	Old

NOTE: If no deviations are required please indicate by circling the appropriate answer above your signature.

PROJECT: _____ DEVIATIONS: Yes / No

COMPANY: _____

TITLE: _____ SIGNATURE: _____

TELEPHONE: _____ DATE: _____

IT IS THE RESPONSIBILITY OF THE DIVISION 26 CONTRACTOR TO OBTAIN SHOP DRAWING INFORMATION FROM OTHER TRADES. FAILURE TO PERFORM THE WORK REQUIRED BY THIS AFFIDAVIT, PRIOR TO ORDERING MATERIALS OR ROUGHING-IN, MAY RESULT IN IMPROPER CONNECTIONS BEING PROVIDED. THE EXPENSE OF CORRECTIVE MEASURES, IF REQUIRED, SHALL BE BORNE BY THE CONTRACTOR.

NOTE:
PANELBOARD SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL THE ELECTRICAL CONTRACTOR COMPLETES AND SUBMITS THIS AFFIDAVIT TO THE ELECTRICAL ENGINEER.

END OF SECTION 260512

SECTION 260519 – LOW-VOLTAGE ELECTRICAL CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
 - 1. Wire and cable for 600 volts and less.
 - 2. Wiring connectors and connections.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.4 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition.
dd
- B. NFPA 70 - National Electrical Code; National Fire Protection Association, current edition.

PART 2 - PRODUCTS

2.1 WIRING REQUIREMENTS

- A. Concealed Dry Interior Locations: Use only THHN-2, THWN-2 or XHHW-2 wire in raceway.
- B. Exposed Dry Interior Locations: Use only THHN-2, THWN-2, or XHHW-2 in raceway.
- C. Above Accessible Ceilings: Use only THHN-2, THWN-2, or XHHW-2 in raceway.
- D. Wet or Damp Interior Locations: Use only THWN-2 or XHHW-2 in raceway.
- E. Exterior locations (above or below grade) THWN-2, XHHW-2 or USE in raceway.
- F. Use conductors not smaller than 12 AWG for power and lighting circuits.
- G. Use conductors not smaller than 14 AWG for control circuits.
- H. Metal Clad (MC) cable shall not be used unless prior approval has been granted by the architect and engineer.

2.2 CONSTRUCTION WIRE

- A. Conductor: Copper.
- B. Insulation Voltage Rating: 600 volts.
- C. Temperature Rating: 90° C.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Pull all conductors into raceway at same time.
- B. Use suitable wire pulling lubricant for building wire 4 AWG and larger. Do not exceed manufacturers recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- D. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- E. Clean conductor surfaces before installing lugs and connectors.
- F. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
- G. Use split bolt connectors or compression fittings for splices and taps on conductors 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.
- H. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
- I. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
- J. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values or UL 486A and UL 486B.
- K. Identify and color code wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.
- L. For each electrical connection/termination, provide a complete assembly of materials, including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wire nuts, and other materials necessary to complete splices and terminations. Torque all connections according to installation instructions.

- M. Motor connections shall be made with compression connectors forming a bolted in-line or stub-type connection.
- N. Splicing of feeder conductors shall not be acceptable, unless specifically indicated on the drawing. Where splicing of feeder conductors is indicated, splices shall be made using compression type butt splice.
- O. All splices made underground or in the pipe basements shall be rated suitable for water immersion.
- P. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

3.2 LABELING

A. Color Coding

- 1. Color shall be green for grounding conductors and green with yellow stripe for isolated grounding conductors.
- 2. The color of the circuit conductors shall be as follows:

120/208 volt, 3-phase	Phase A - Black Phase B -Red Phase C - Blue Neutral - White
277/480 volt, 3-phase:	Phase A - Brown Phase B - Orange Phase C - Yellow Neutral – Gray

END OF SECTION 260519

SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Grounding and bonding components.
- B. Provide all components necessary to complete the grounding system(s) consisting of:
 - 1. Metal frame of the building.
 - 2. Concrete-encased & Bare copper electrode.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.4 REFERENCES

- A. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association; current edition.
- C. IEEE Standard 142 “Green Book” – Recommended Practices for Grounding of industrial and Commercial Power Systems; current edition.

1.5 PERFORMANCE REQUIREMENTS

- A. Maximum grounding system resistance: 15 ohms.
- B. Services at power company interface points shall comply with the power company ground resistance requirements.

PART 2 - PRODUCTS

2.1 ELECTRODES

- A. Sectionalized steel with copper-welded exterior, 3/4" dia. x 10'. One 10-foot section shall be required at each ground rod location, unless as otherwise directed in this specification.

2.2 CONDUCTORS

- A. Bonding Jumper Braid: Copper braided tape, sized for application.
- B. Electrical Grounding conductors: Unless otherwise indicated, provide bare or green insulated

stranded copper electrical grounding conductors sized according to NEC or as shown or specified. Provide green insulated for conductors sized No. 10 AWG and smaller.

2.3 GROUND CONNECTIONS

- A. Below Grade: Exothermic-welded type connectors.
- B. Above Grade:
 - 1. Bonding Jumpers: compression type connectors, using zinc-plated fasteners and external tooth lock washers.
 - 2. Ground Busbars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.
 - 3. Rack and Cabinet Ground Bars: one-hole compression-type lugs using zinc-plated or copper alloy fasteners.
- C. Install exothermic connectors and terminals as recommended by the connector and terminal manufacturer for intended applications.
- D. Bolted clamp will not be accepted between grounding rods and ground conductors.

2.4 EQUIPMENT RACK AND CABINET GROUND BARS

- A. Provide solid copper ground bars designed for mounting on the framework of open or cabinet-enclosed equipment racks with minimum dimensions of 3/8 inch x 3/4 inch unless noted otherwise.
- B. Busbar Connectors: Cast silicon bronze, solderless, mechanical connector; with a long barrel and two holes spaced on 5/8- or 1-inch (15.8- or 25.4-mm) centers for a two-bolt connection to the busbar.
- C. Telecommunications Enclosures and Equipment Racks: Bond metallic components of enclosures to the telecommunications bonding and grounding system. Install top-mounted rack grounding busbar unless the enclosure and rack are manufactured with the busbar. Bond the equipment grounding busbar to the TGB No. 2 AWG bonding conductors.
- D. Rack- and Cabinet-Mounted Equipment: Bond powered equipment chassis to the cabinet or rack grounding bar. Power connection shall comply with NFPA 70; the equipment grounding conductor in the power cord of cord- and plug-connected equipment shall be considered as a supplement to bonding requirements in this Section.

2.5 GROUND TERMINAL BLOCKS

- A. At any equipment mounting location (e.g. backboards and hinged cover enclosures) where rack-type ground bars cannot be mounted, provide screw lug-type terminal blocks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions prior to beginning work.

- B. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.2 CORROSION INHIBITORS

- A. When making ground and ground bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.
- B. Where concrete penetration is necessary, non-metallic conduit shall be cast flush with the points of concrete entrance and exit so as to provide an opening for the ground wire and the opening shall be sealed with a suitable compound after installation of the ground wire.

3.3 SECONDARY EQUIPMENT AND CIRCUITS

- A. Connect metallic conduit to panelboards which terminate without mechanical connection to the housing, by grounding bushings and grounding conductor to the equipment ground bus.
- B. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders and power and lighting branch circuits, sized in accordance with Article 250 of NFPA 70.
- C. Boxes, Cabinets, Enclosures, and Panelboards:
 - 1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes.
 - 2. Provide lugs in each box and enclosure for equipment grounding conductor termination.
 - 3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs to terminate the equipment grounding conductors.
- D. Receptacles shall not be grounded through their mounting screws. Ground with a jumper from the receptacle green ground terminal to the device box ground screw and the branch circuit equipment grounding conductor.
- E. Fixed electrical appliances and equipment shall be provided with a ground lug for termination of the equipment grounding conductor.
- F. Metallic Conduit: Metallic conduits which terminate without mechanical connection to an electrical equipment housing by means of locknut and bushings or adapters, shall be provided with grounding bushings. Connect bushings with a bare grounding conductor to the equipment ground bus.

3.4 INSTALLATION

- A. Install ground electrodes at locations indicated. Provide additional electrodes as required to achieve specified resistance to ground.

- B. Install nominal 10" diameter x 18" long fiberglass "water valve" type enclosure, with cover, over each ground rod. The top of ground rods shall be 12" below finished grade. The rod and exothermic connection to the grounding electrode conductor shall be accessible from within enclosure. Fill the lower 3" of enclosure with crushed rocks. Top of enclosure shall be flush with finished grade.
- C. Make rebar in concrete footing around the perimeter of the building electrically continuous such that the resulting installation consists of a concrete encased electrode per Article 250 of the NEC. Extend No. 1/0 THWN grounding electrode conductors from convenient points along the "ground ring" to the equipment ground system.
- D. If it is determined that the rebar cannot be made electrically continuous, install a No 1/0 bare copper conductor in the footing around the perimeter of the bleachers.
- E. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing.
- F. Bond together metal bleachers not attached to grounded structure; bond to ground.

3.5 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA STD ATS except Section 4.
- B. Perform inspections and tests listed in NETA STD ATS, Section 7.13.
- C. Upon completion of installation of electrical grounding system, test resistance of each ground rod installation using the "Fall of Potential" method. Ground resistances shall be measured in normally dry conditions not less than 48 hours after rainfall and at low tide. Where tests show resistance to ground is over the specified value, take appropriate action to reduce resistance by driving additional sections of ground rods and then retest to demonstrate compliance. Tests shall be conducted in the presence of the Project Electrical Engineer. Provide forms to record the data as the tests are conducted. Forms shall be signed by the person conducting the test and included with project closeout documents.
- D.

END OF SECTION 260526

SECTION 260529 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
 - 1. Conduit and equipment supports.
 - 2. Anchors and fasteners.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.4 REFERENCE STANDARDS

- A. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition.

PART 2 - PRODUCTS.

2.1 MATERIALS

- A. Hangers, Supports, Anchors, and Fasteners - General: Corrosion-resistant materials of size and type adequate to carry the loads of equipment and conduit, including weight of wire in conduit.
- B. Supports: Fabricated of structural steel or formed steel members; galvanized, *or PVC*.
- C. Anchors and Fasteners:
 - 1. Do not use powder-actuated anchors.
 - 2. Concrete Structural Elements: Use precast inserts, expansion anchors, or preset inserts.
 - 3. Steel Structural Elements: Use beam clamps, steel spring clips, steel ramset fasteners, or welded fasteners.
 - 4. Concrete Surfaces: Use self-drilling anchors or expansion anchors.
 - 5. Sheet Metal: Use sheet metal screws.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install hangers and supports as required to adequately and securely support electrical system

components, in a neat and workmanlike manner, as specified in NECA 1.

1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- B. Cutting or Holes:
1. Locate holes in advance where they are proposed in the structural sections such as ribs or beams. Obtain the approval of the Structural Engineer prior to drilling through structural sections.
 2. Cut holes through concrete and masonry in new and existing structures with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills are not allowed, except where permitted by the Structural Engineer as required by limited working space.
- C. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.
- D. Install surface-mounted cabinets and panelboards with minimum of four anchors.
- E. In wet and damp locations use steel channel supports to stand cabinets, panelboards 1 inch (25 mm) off wall.
- F. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- G. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits
- H. Do not support conduit with wire, wire ties, or perforated pipe straps. Remove wire used for temporary supports.

END OF SECTION 260529

SECTION 260533 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510

1.2 QUALITY ASSURANCE

- A. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown.

1.3 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); current edition
- B. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); current edition
- C. ANSI C80.5 - American National Standard for Electrical Rigid Aluminum Conduit (ERAC); current edition
- D. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition
- E. NECA 101 - Standard for Installing Steel Conduit (Rigid, IMC, EMT); National Electrical Contractors Association; current edition
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; current edition

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Accept conduit on site. Inspect for damage
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 - PRODUCTS

2.1 CONDUIT REQUIREMENTS

- A. Conduit Size: Comply with NFPA 70.
 - 1. Minimum Size: 3/4 inch
- B. Wet and Damp Locations:
 - 1. Exterior above ground and in pipe basements: RMC, IMC, or LFMC (LFMC shall be only used with restrictions, see conduit installation)

2. Exterior below ground: RNC schedule 40
 3. Interior: RMC, IMC, or LFMC (LFMC shall be only used with restrictions, see conduit installation)
 4. Where RNC Schedule 40 is installed below grade or under floor slabs, the elbows required to turn the raceway up through the slab shall be RMC.
- C. Dry Locations:
1. Concealed: Use EMT or FMC (FMC shall be only used with restrictions, see conduit installation)
 2. Exposed: Use EMT or FMC (FMC shall be only used with restrictions, see conduit installation)
- D. Area subject to physical damage: RMC, IMC, or LFMC (LFMC shall be only used with restrictions, see conduit installation)
1. "Areas subject to physical damage" shall be defined as the most stringent of the following:
 - a. Exposed conduit below eight feet above finished floor.
 - b. As interpreted by the authority having jurisdiction (AHJ).

2.2 METAL CONDUIT

- A. Rigid Steel Galvanized Conduit (RMC): ANSI C80.1.
- B. Intermediate Metal Conduit (IMC): ANSI C80.6.
- C. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.
1. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
 2. Standard threaded couplings, locknuts, bushings, and elbows: Only steel or malleable iron materials are acceptable. Integral retractable type IMC couplings are also acceptable.
 3. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
 4. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.
 5. Bushings: Metallic insulating type, consisting of an insulating insert molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
 6. Sealing fittings: Threaded cast iron type. Use continuous drain type sealing fittings to prevent passage of water vapor. In concealed work, install fittings in flush steel boxes with blank cover plates having the same finishes as that of other electrical plates in the room.

2.3 FLEXIBLE METAL CONDUIT

- A. FLEXIBLE METAL CONDUIT (FMC) Description: Interlocked steel construction. Flexible metal conduit shall conform to UL 1.
- B. Fittings: NEMA FB 1.
1. Conform to UL 514B. Only steel or malleable iron materials are acceptable.

2. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
3. Clamp type, with insulated throat.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC) Description: Interlocked steel construction with PVC jacket. Liquid-tight flexible metal conduit: Shall Conform to UL 360.
- B. Fittings: UL 514B and ANSI/ NEMA FB1.
 1. Only steel or malleable iron materials are acceptable.
 2. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
 3. Fittings must incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.
 4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

2.5 ELECTRICAL METALLIC TUBING

- A. ELECTRICAL METALLIC TUBING (EMT) Description: ANSI C80.3
- B. Fittings and Conduit Bodies: NEMA FB 1; steel compression type.
 1. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
 2. Die-cast or pressure-cast zinc-alloy fittings made of "pot metal" are prohibited.
 3. Couplings and connectors: Concrete tight and rain tight, with connectors having insulated throats. Use gland and ring compression type couplings and connectors for conduit sizes of 50mm (2 inches) and smaller.
 4. Only steel or malleable iron materials are acceptable.
 5. Indent type connectors or couplings are prohibited.

2.6 NONMETALLIC CONDUIT

- A. RIGID NONMETALLIC CONDUIT (RNC): Direct burial plastic conduit: Shall conform to UL 651 and UL 651A, heavy wall PVC or high density polyethylene (PE).
- B. RNC: NEMA TC 2, schedule 40 PVC
- C. Fittings shall meet the requirements of UL 514C and NEMA TC3
- D. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.

2.7 EXPANSION AND DEFLECTION COUPLINGS

- A. Conform to UL 467 and UL 514B.
- B. Accommodate, 0.75 inch deflection, expansion, or contraction in any direction, and allow 30 degree angular deflections.
- C. Include internal flexible metal braid sized to guarantee conduit ground continuity and fault

currents in accordance with UL 467, and the NEC code tables for ground conductors.

- D. Jacket: Flexible, corrosion resistant, watertight, moisture and heat resistant molded rubber material with stainless steel jacket clamps.

2.8 CORROSION PROTECTION

- A. Corrosion protection for conduits passing through concrete slabs shall be by one of the following means: field-wrapped with 3M Scotchrap No. 50, 2-inch wide (minimum), with a 50 percent overlay, or shall have a factory-applied polyvinyl chloride, plastic resin, or epoxy coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify routing and termination locations of conduit prior to rough-in.
- B. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to provide a complete wiring system.

3.2 CONDUIT INSTALLATION

- A. Install conduit securely, in a neat and workmanlike manner, as specified in NECA 101.
- B. Waterproofing: At floor, exterior wall, and roof conduit penetrations, completely seal clearances around the conduit and make watertight.
- C. Arrange supports to prevent misalignment during wiring installation.
- D. Arrange conduit to maintain headroom and present neat appearance.
- E. Route exposed conduit parallel and perpendicular to walls.
- F. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- G. Route conduit in and under slab from point-to-point.
- H. Maintain adequate clearance between conduit and piping.
- I. Maintain 12 inch (300 mm) clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).
- J. Cut conduit square using saw or pipecutter; de-burr cut ends.
- K. Bring conduit to shoulder of fittings; fasten securely.
- L. For power conduits install no more than equivalent of three 90 degree bends between boxes.

- Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one shot bender to fabricate bends in metal conduit larger than 2 inch (50 mm) size.
- M. For communication conduits install no more than the equivalent of two 90 degree bends between pull points. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one shot bender to fabricate bends in metal conduit larger than 2 inch (50 mm) size.
 - N. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
 - O. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control, and expansion joints.
 - P. Seal the inside of all conduits where conduit passes below floor or outside of the building.
 - Q. Provide suitable pull string in each empty conduit except sleeves and nipples.
 - R. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
 - S. Do not install FMC or LFMC in lengths over 6’.
 - T. Use LFMC or FMC only to connect to equipment subject to vibration or to suspended light fixtures.
 - U. Wherever possible, install horizontal raceway runs above water and drain piping. Give the right-of-way in confined spaces to piping that must slope for drainage and to larger HVAC ductwork and similar services that are less conformable than electrical services.
 - V. Complete the installation of electrical raceways before starting installation of cables within raceways.

3.3 BOX INSTALLATION

- A. Boxes for Concealed Conduits:
 - 1. Flush mounted.
 - 2. Provide raised covers for boxes to suit the wall or ceiling, construction and finish.
- B. In addition to boxes shown, install additional boxes where needed to prevent damage to cables and wires during pulling in operations.
- C. Remove only knockouts as required and plug unused openings. Use threaded plugs for cast metal boxes and snap-in metal covers for sheet metal boxes.

3.4 IDENTIFICATION

- A. Stencil or install phenolic nameplates on covers of the boxes identified on riser diagrams; for example "SIG-FA JB No. 1"

- B. On all concealed junction box covers, identify the circuits with black marker. For exposed junction boxes use printed labels.

END OF SECTION 260533

SECTION 260536 – CABLE TRAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
- B. Provide cable tray system in areas indicated, complete with all supports, fittings and accessories.
- C. Furnishing, installation and connection of raceway systems and wiring for the radiology equipment.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown
- B. The drawings, which constitute a part of these specifications, indicate the general route of the cable tray systems. Data presented on these drawings is as accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification of all dimensions, routing, etc., is required by the contractor.
- C. Drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Contractor is directed to make field surveys as part of his work prior to submitting system layout drawings.

PART 2 - PRODUCTS

2.1 CENTER SUPPORTED CABLE TRAY

- A. Acceptable manufacturers, contingent upon compliance with the contract documents, are as listed below. Bidders shall carefully review the requirements listed in the technical specifications and only submit products that are equal or better. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed in the “Instructions to Bidders” and approved by the A/E. Bidders shall carefully review the front end documents (AIA A701) and submit all information required to allow the A/E the ability to make a fully informed decision.
 - 1. Basis of design manufacturers
 - a. Mono-Systems, Inc.
 - b. Atlas
 - c. B-line
 - d. Legrand CABLOFIL
- B. Complete assembly of cable tray, and necessary accessories, shall be free of burrs and sharp

edges.

- C. Tray shall be constructed of a center rectangular aluminum tube which forms a spine to which cross rungs are attached on 9 inch centers.
- D. The cross rungs shall be bent up at their ends to the height of 4 inches to form a center supported, open sided, ladder like assembly. The tray shall not have side rails. Tray width: 24 inches, unless noted otherwise.

2.2 WIRE BASKET STYLE CABLE TRAY

A. Acceptable manufacturers, contingent upon compliance with the contract documents, are as listed below. Bidders shall carefully review the requirements listed in the technical specifications and only submit products that are equal or better. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed in the “Instructions to Bidders” and “Supplemental Instructions to Bidders” (AIA A701) and approved by the A/E. Bidders shall carefully review the front end documents (AIA A701) and submit all information required to allow the A/E the ability to make a fully informed decision.

- 1. Basis of design manufacturers
 - a. Mono-Systems, Inc.
 - b. Atlas
 - c. B-line

B. Wire basket shall be made of high strength steel wires and formed into a standard 2 inch by 4 inch wire mesh pattern with intersecting wires welded together. All mesh sections must have at least one bottom longitudinal wire along entire length of straight section.

C. Wire basket shall have a [4][6] inch usable loading depth by [8][12][16][18][20][24] inches wide.

PART 3 - EXECUTION

3.1 LAYOUT

- A. Layout of cable tray is the responsibility of the Contractor. Coordinate location with building structure and other trades to ensure that the tray is readily accessible. Tray shall not be installed more than 18" above ceilings, without written permission by the Architect.
- B. Provide sufficient space encompassing wire basket to permit access for installing and maintaining cables.

3.2 INSTALLATION

- A. Provide all connector assemblies, clamp assemblies, connector plates, splice plates and splice bars, and mounting hardware required for a complete system.
- B. Splice Connectors: Sections of tray shall be joined using a two bolt rectangular splice connector which telescopes into the spine of the tray. Splice connectors shall allow for thermal expansion/contraction of the tray system.

- C. Supporting: The tray shall be supported on 12-foot centers, maximum.
- D. Bracing and Leveling: Brace trays on intervals required to prevent lateral movement. After installation of cables by other trades, adjust supports and braces so that tray is level.
- E. Trough-type raceway sections and cable tray sections shall be made electrically continuous by short bonding jumpers between adjacent sections.
- F. Ground all cable tray and trough.
- G. Fittings: All fittings, inserts, covers, couplings, connectors and other accessories required to effect a complete rigid mechanical installation shall be provided and shall be listed as suitable for use with cable tray.
- H. Bushings: Provide conduit bushings and bond to ground, attached to tray, to accommodate conduit sleeves terminated at tray or trough. Conduits shall be supported within 6" of tray, independent of tray supports.
- I. Cable tray and trough loading: Provide cross-section of cable tray for every wing/area to show proposed location/spacing of cables. Layout of cables in tray is the contractor's responsibility. Maintain required spacing between cables of different systems while leaving room for the future installation of 25% additional cables.

END OF SECTION 260536

SECTION 260543 – UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS:

- A. Refer to section 260510.

PART 2 - PRODUCTS

2.1 DUCTBANKS

- A. Any grouping of conduits underground shall be considered a duct bank.
- B. Ducts shall be 4" diameter minimum, type EB40 for encased burial.
- C. Raceways shall be provided in accordance with specification 260533 Raceway and Boxes for Electrical Systems.
- D. Fittings for raceways shall be designed specifically for use with the type of raceway installed. All couplings or other connections shall be made tight and sealed to exclude water and concrete.
- E. Top, intermediate and bottom spacers of plastic, or other approved non-organic material, shall be provided to maintain a separation between raceways of not less than that shown on drawings. Spacers shall be of the type specifically intended for encased installations.

2.2 HANDHOLES

- A. Handholes shall be constructed of steel reinforced 3,000 pound, 28-day strength concrete, or reinforced polymer concrete manufactured in molded structural shapes, on undisturbed or thoroughly compacted earth and shall conform with details and dimensions indicated on the drawings. Neoprene or other suitable water-stops shall be provided at all concrete construction joints.
- B. Locations of handholes shall be as dimensioned. Where no locating dimensions are given, handholes shall be approximately where shown, with possible interferences with other utilities, etc.
- C. Frames and covers for handholes shall be heavy duty, top quality, close grained gray cast iron or reinforced polymer concrete, both being milled to provide a true fit. Covers shall be equipped with drop lift handles and with the word "ELECTRIC" cast thereon. Type and style of frames and covers shall be as indicated on the drawings.
- D. Hardware shall be of gray cast iron or hot-dip galvanized steel.
- E. Water, mud, and trash shall be periodically pumped or otherwise removed from handholes by the Contractor until final acceptance of the work.

- F. Metal Frames and Covers: Shall be made of cast iron. Cast iron frames and covers shall meet Fed Spec. RR-F-621. Covers shall be rated AASHTO H20. The words "electric" shall be cast in the top face of the covers.

2.3 WARNING TAPE

- A. Provide a plastic warning tape in the backfill above all underground cables, conduits and duct banks. The tape shall be 3 inches wide, shall be bright, fade-resistant, red in color for power, yellow/orange in color for low voltage, and shall include an imprinted legend, "“WARNING - BURIED HIGH VOLTAGE LINE”", "“WARNING - BURIED FIBER OPTIC LINE”" or "“WARNING - BURIED TELEPHONE LINE”", as applicable., repeated continuously throughout the entire length. Tape shall be buried 12 inches below top of trench.

PART 3 - EXECUTION

3.1 GENERAL

- A. Layout of duct banks is the responsibility of the Contractor. Coordinate layout with existing site conditions, the elevation of manhole openings and work by other trades. Duct lines shall be sloped to drain towards manholes and pull boxes, with a pitch of not less than 3 inches in 100 feet. For lines run between adjacent manholes or pull boxes, high point may occur in the middle of run.
- B. Excavation, Trenching and Backfilling: Provide as required to install duct banks in the manner indicated on the drawings and in accordance with the applicable sections of Division 31 through 33 of the specifications.
- C. Provide barricades with warning lights, around all trenches. Barricades shall be orange mesh type supported by rods driven into the earth. Barricades shall remain in place at all times, not just at night. Maintain the integrity and appearance of the barricades until the trenches have been backfilled and compacted.
- D. Clearance from Other Utilities: Do not install lines installed under this contract in the same trenches with other utilities. Maintain horizontal and vertical separation as required by ANSI C2.

3.2 INSTALLATION

- A. During construction, partially completed duct lines shall be protected from the entrance of debris such as mud, sand and dirt, by means of suitable conduit plugs. As each section of a duct line is completed from manhole to manhole, a testing mandrel not less than 12 inches long with a diameter 1/4-inch less than the size of the conduit, shall be drawn through each conduit, after which a brush having the diameter of the conduit, and having stiff bristles, shall be drawn through until the conduit is clear of all particles of earth, sand, and/or gravel; conduit plugs shall then be immediately installed.
- B. Install spacers every 5' along the duct run and at the midpoint and points of tangency of all bends. Anchor spacers to trench to ensure that the duct banks are held securely in place during concrete pours.

- C. Ducts shall be encased in concrete as shown on the drawings. Care shall be taken that no voids are left between ducts.
- D. Ducts crossing roadways and parking lots shall be reinforced as indicated on the drawings. Cutting and patching shall conform to the details shown on the Civil drawings. Engage the services of the paving and grading contractor to perform all cutting and patching.
- E. Install warning tape 12" below grade along the entire length of, and centered on duct banks.
- F. Bends: Except at conduit risers, changes in direction of runs exceeding a total of 10 degrees, either vertical or horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 25 feet. Sweep bends may be made up of one or more curved or straight sections or combinations thereof. Manufactured bends shall have a minimum radius of 48".
- G. Connections to Handholes: Connections shall be constructed to have a flared section adjacent to the manhole to provide shear strength. Underground structures shall be constructed to provide for keying the concrete envelope of the duct line into the wall of the structure. Vibrators shall be used when this portion of the envelope is poured to assure a seal between the envelope and the wall of the structure. Conduits shall terminate in end-bells where duct lines enter manholes.
- H. Connections at Pad Mounted transformers: Terminate encasement at underside of concrete pad.

3.3 RECONDITIONING OF SURFACES

- A. Ground covering and vegetation disturbed during installation, shall be restored to original elevation and condition.
- B. Sod or topsoil shall be preserved carefully and replaced after the backfilling is completed. Sod that is damaged shall be replaced by sod of quality equal to that removed. When the surface is disturbed in a newly seeded area, the restored surface shall be re-seeded with the same quantity and formula of seed as that use in the original seeding.

3.4 CABLE PULLING

- A. Pull cables down grade with the feed-in point at the handhole or buildings of the highest elevation. Use flexible cable feeds to convey cables through the handhole opening and into the conduit. Cable slack shall be accumulated at each handhole where space permits. Minimum allowable bending radii shall be maintained.
- B. Lubricants: For assisting in the pulling of cables shall be those specifically recommended by the cable manufacturer. The lubricant shall not be deleterious to the cable sheath, jacket, or outer coverings.
- C. Cable Pulling Tensions: Shall not exceed the maximum pulling tension recommended by the cable manufacturer.

- D. Grounding Conductor: Secondary cable runs, 600 volts and less, in non-metallic conduit shall, although not indicated, include an insulated copper equipment grounding conductor sized as required by the rating of the overcurrent device supplying the phase conductors.

END OF SECTION 260543

SECTION 260548 – VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 QUALITY ASSURANCE

- A. Submittals must be signed and sealed shop drawings from a professional engineer licensed in the state that the project is located in. Shop drawings to include project specific details, sketches, product data cut sheets.
- B. The contractor shall provide pre-engineered seismic restraint systems to meet total design lateral force requirements for support and restraint of piping, conduit, cable trays and other similar systems and equipment where required by the applicable building code.
- C. System Supports/Restraints Manufacturers shall be firms regularly engaged in the manufacture of products of the types specified in this section, whose products have been in satisfactory use in similar service for not less than 5 years.

PART 2 - PRODUCT

2.1 SEISMIC BRACING

- A. General:
 - 1. Seismic restraint designer shall coordinate all attachments with the structural engineer of record.
 - 2. Design analysis shall include calculated dead loads, static seismic loads, and capacity of materials utilized for the connection of the equipment or system to the structure.
 - 3. Analysis shall detail anchoring methods, bolt diameter, and embedment depth.
 - 4. All seismic restraint devices shall be designed to accept without failure the forces calculated per the details and notes on the construction documents
- B. Friction from gravity loads shall not be considered resistance to seismic forces.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data
- B. Installation of seismic restraints shall not cause any change in position of equipment or piping, resulting in stresses or misalignment.
- C. No rigid connections between equipment and the building structure shall be made that degrade the noise and vibration-isolation system specified.

- D. Do not install any equipment, piping, duct, or conduit that makes rigid connections with the building.
- E. Prior to installation, bring to the architect's/engineer's attention any discrepancies between the specifications and the field conditions, or changes required due to specific equipment selection.
- F. Bracing may occur from flanges of structural beams, upper truss cords of bar joists, cast in place inserts, or wedge-type concrete anchors. Consult structural engineer of record.
- G. Overstressing of the building structure shall not occur from overhead support of equipment. Bracing attached to structural members may present additional stresses. The contractor shall submit loads to the structural engineer of record for approval in this event.
- H. Brace support rods when necessary to accept compressive loads. Welding of compressive braces to the vertical support rods is not acceptable.
- I. Provide reinforced clevis bolts where required.
- J. Seismic restraints shall be mechanically attached to the system. Looping restraints around the system is not acceptable.
- K. Do not brace a system to two independent structures such as a ceiling and wall.
- L. Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement.

3.2 FIELD QUALITY CONTROL

- A. Inspect all seismic supports after installation and submit a report from a professional engineer licensed in the state that the project is located in.

END OF SECTION 260548

SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

PART 2 - PRODUCTS

2.1 NAMEPLATES AND LABELS

- A. Nameplates: Engraved three-layer laminated plastic, black letters on white background unless noted otherwise.
- B. Locations:
 - 1. Each electrical distribution and control equipment enclosure.
- C. Letter Size:
 - 1. Use 1/4 inch (6 mm) letters for identifying grouped equipment and loads.
- D. Labels: Embossed adhesive tape, with 3/16 inch (5 mm) white letters on black background. Use only for identification of individual wall switches, receptacles, and control device stations. Labels shall identify the panel and circuit number (Ex: PANEL: CIRCUIT).

PART 3 - EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and labels.

3.2 INSTALLATION

- A. Install nameplates and labels parallel to equipment lines.
- B. Secure nameplates to equipment front using corrosion resistant screws.
- C. Secure nameplates to inside surface of door on panelboard that is recessed in finished locations.
- D. Provide name plates on all disconnects, panelboards and transformers.
- E. Provide labels on all receptacles and light switches.

END OF SECTION 260553

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- D. Dry type transformers shall be in accordance with NEMA standards

1.3 REFERENCES

- A. NEMA ST 1 - Specialty Transformers (Except General Purpose Type); National Electrical Manufacturers Association; current edition
- B. NEMA ST 20 - Dry-Type Transformers for General Applications; National Electrical Manufacturers Association; current edition
- C. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association; current edition

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store in a clean, dry conditioned space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
- B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers

1. Eaton Electrical/Cutler-Hammer
2. GE Industrial
3. Square D
4. Siemens

2.2 TWO-WINDING TRANSFORMERS

- A. Description: NEMA ST 20, factory-assembled, air-cooled dry type transformers.
- B. Primary Voltage: As indicated on plans.
- C. Secondary Voltage: As indicated on plans.
- D. Insulation system and average winding temperature rise: Class 220 with 150 degrees C rise.
- E. Case Temperature: Do not exceed 35 degrees C rise above ambient at warmest point at full load.
- F. Winding Taps: minimum of two 2.5 percent below rated voltage, and two 2.5 percent above rated voltage.
- G. Sound Levels: comply with NEMA ST 20.; Maximum sound levels shall not exceed the following:

Transformer Rating	Sound Level Rating
0 - 9 KVA	40 dB
10 - 50 KVA	45 dB
51 - 150 KVA	50 dB
151 - 300 KVA	55 dB
301 - 500 KVA	60 dB

- H. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
- I. Mounting: suitable for wall; floor; trapeze mounting.
- J. Coil Conductors: Continuous [copper][aluminum] windings with terminations brazed or welded.
- K. Transformer Enclosure: NEMA ST 20.
 1. Indoor - Type 1; Type 3R; Ventilated
 2. Wet locations (outdoor or indoor) - Type NEMA 4R; Non-ventilated;
 3. Provide lifting eyes or brackets.
- L. Isolate core and coil from enclosure using vibration-absorbing mounts.

- M. Nameplate: Include transformer connection data and overload capacity based on rated allowable temperature rise.
- N. Electrostatic Shield: Copper, between primary and secondary windings.
- O. Transformer impedance value shall be manufacturer's standard for size transformer provided unless noted otherwise.
- P. Transformers shall meet the minimum energy efficiency values per DOE 2016 Efficiency.

2.3 SOURCE QUALITY CONTROL

- A. Production test each unit according to NEMA ST 20.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Set transformers plumb and level.
- B. Use flexible conduit, for connections to transformer case. Make conduit connections to side panel of enclosure.
- C. Mount wall-mounted transformers using integral flanges or accessory brackets furnished by the manufacturer.
- D. Mount floor-mounted transformers on vibration isolating pads suitable for isolating the transformer noise from the building structure. Floor mounted transformers shall be installed on a 4" high (min) concrete pad with 6" minimum overlap on all sides. Anchor transformer to pad.
- E. Mount trapeze-mounted transformers as indicated.
- F. Installation of transformers shall be such that air circulation around the units is not restricted. Hold 6" off walls.
- G. For suspended transformers, coordinate exact placement with sprinkler system installer.

3.2 FIELD QUALITY CONTROL

- A. Perform inspections and tests listed in NETA STD ATS, Section 7.2. In addition to the basic requirements of Section 7.2, include the following:
 - 1. Measure the resistance of each winding at each tap connection.
 - 2. Overpotential test on all high- and low-voltage windings-to-ground.
 - 3. Infrared testing on transformer and terminations.

3.3 ADJUSTING

- A. Measure primary and secondary voltages and make appropriate tap adjustments.

END OF SECTION 262200

SECTION 262726 – WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
 - 1. Receptacles.
 - 2. Device plates.
 - 3. Wall switches.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.4 REFERENCE STANDARDS

- A. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition.
- B. NEMA WD 1 - General Color Requirements for Wiring Devices; National Electrical Manufacturers Association; current edition).
- C. NEMA WD 6 - Wiring Device -- Dimensional Requirements; National Electrical Manufacturers Association; current edition.

PART 2 - PRODUCTS

2.1 APPROVED MANUFACTURERS

- A. Acceptable manufacturers, contingent upon compliance with the contract documents, are as listed below. Bidders shall carefully review the requirements listed in the technical specifications and only submit products that are equal or better. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed in the front end specifications and approved by the A/E. Bidders shall carefully review the front end documents and submit all information required to allow the A/E the ability to make a fully informed decision.
 - 1. Cooper Wiring Devices
 - 2. GE Industrial
 - 3. Leviton Manufacturing, Inc

4. Hubbell, Inc
5. Lutron Electronics Inc
6. Wattstopper Inc
7. Schneider Electric
8. Legrand – Pass & Seymour
9. C.W. Cole & Company
10. Acuity Brands Lighting, Inc

2.2 RECEPTACLES

- A. GFCI Receptacles: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements. Feed through GFCI devices shall not be used. GFCI devices shall contain self-testing feature with power lockout if self-test fails.
- B. Special Purpose Receptacles: Provide heavy-duty type as indicated on the drawings.
- C. Wet Location: A receptacle installed in a wet location shall be GFCI listed weather-resistant type.

2.3 WALL PLATES

- A. Weatherproof Cover Plates: All devices installed outdoors and indoor devices specifically indicated, shall be provided with weatherproof covers. Covers shall be of the type that maintains weatherproof integrity when in-use and not in-use. Covers shall be listed and identified as “extra duty” type.

2.4 WALL SWITCHES

- A. Wall Switches: Heavy Duty, AC only general-use snap switch, complying with NEMA WD 6 and WD 1.
 1. Body and Handle: color by architect plastic with toggle handle
 2. Ratings: Match branch circuit and load characteristics.
- B. Switch Types: Single pole, double pole, 3-way, and 4-way.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that outlet boxes are installed at proper height.
- B. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean debris from outlet boxes.

3.3 INSTALLATION

- A. Install securely, in a neat and workmanlike manner, as specified in NECA 1.
- B. Install devices plumb and level.
- C. Do NOT utilize back wiring on any wiring device.
- D. Install receptacles with grounding pole on top.
- E. Do not install receptacles within 6” of the edge of sinks.
- F. Connect wiring device ground terminal to outlet box with bonding jumper.
- G. All receptacles installed as listed below shall be GFCI type.
 - 1. Receptacles installed outdoors.
 - 2. Receptacles installed within six feet of sinks.
 - 3. Receptacles designated for electric drinking fountains.
 - 4. Receptacles designated for vending machines.
 - 5. Any other receptacles specifically indicated on the drawings.
 - 6. Receptacles installed in residential mechanical rooms.
- H. Install decorative plates in finished areas.
- I. Connect wiring devices by wrapping conductor around screw terminal.
- J. Provide engraved stainless steel wall plates that indicate the branch circuit to which the associated device is connected. Use 1/8” high black letters.
- K. Install switches with OFF position down.
- L. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
- M. Do not share neutral conductor on load side of dimmers.

3.4 FIELD QUALITY CONTROL

- A. Perform all field inspection, testing, and adjusting specified in NETA STD ATS
- B. Inspect each wiring device for defects.
- C. Verify that each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.
- F. Operate each wall switch with circuit energized and verify proper operation.

- G. Test each occupancy sensor and verify settings are appropriate for associated space.

3.5 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.
- B. It shall be the contractor's responsibility to locate and aim occupancy sensors in the correct location required for complete and proper volumetric coverage within the range of coverage(s) of controlled areas per the manufacturer's recommendations. Rooms shall have ninety (90) to one hundred (100) percent coverage to completely cover the controlled area to accommodate all occupancy habits of single or multiple occupants at any location within the room(s). The locations and quantities of sensors shown on the drawings are diagrammatic and indicate only the rooms which are to be provided with sensors. The contractor shall provide additional sensors if required to properly and completely cover the respective room.
- C. Proper judgment must be exercised in executing the installation so as to ensure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structural components. The contractor shall also provide, at the owner's facility, the training necessary to familiarize the owner's personnel with the operation, use, adjustment, and problem solving diagnosis of the occupancy sensing devices and systems.

3.6 CLEANING

- A. It is anticipated that painting and other finish work may occur after device installation. Device plates shall not be installed until these activities are completed. Protect device and conductors by installing molded plastic cover.
- B. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION 262726

SECTION 262813 – FUSES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to Section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Cooper Bussmann

2.2 FUSES – GENERAL

- A. Dimensions and Performance: NEMA FU 1, Class as specified or indicated.
- B. Voltage: Rating suitable for circuit phase-to-phase voltage.
- C. Provide class R5 time delay fused for all motor applications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fuses with label oriented such that manufacturer, type, and size are easily read.
- B. Provide a spare fuse cabinet and stock with one fuse puller for each size fuse installed and provide 10% spare fuses or a minimum of 3 for each size installed. Install fuse cabinet in main electrical room.

END OF SECTION 262813

SECTION 262816 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Furnish products listed and classified by Underwriters Laboratories Inc.; or testing firm acceptable to authority having jurisdiction as suitable for purpose specified and indicated.

1.3 REFERENCES

- A. NEMA FU 1 - Low Voltage Cartridge Fuses; National Electrical Manufacturers Association; current edition.
- B. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum); National Electrical Manufacturers Association; current edition.
- C. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers
 - 1. Eaton Electrical/Cutler-Hammer
 - 2. GE Industrial
 - 3. Square D
 - 4. Siemens

2.2 NON-FUSIBLE SWITCH

- A. Non-fusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
 - 1. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
 - 2. Handle lockable in OFF position.

2.3 FUSIBLE SWITCH

- A. Fusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
 - 1. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
 - 2. Handle lockable in OFF position.
 - 3. Fuse clips: Designed to accommodate NEMA FU1, Class R or J fuse
- B. Fusible switches serving elevators shall be provided with a set of Form C contacts.

2.4 MOLDED CASE CIRCUIT BREAKERS

- A. Molded Case Circuit Breakers for circuit breakers smaller than 200 amps: UL listed for the following service conditions: Temperature: 40 degrees C.

2.5 ENCLOSURES

- A. Enclosures: NEMA KS 1.
 - 1. Exterior Locations: NEMA 4X stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with Manufacturer's instructions.
- B. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.
- C. All switches associated with outdoor equipment shall be located as close to the equipment as possible (when equipment is in a service yard, switches shall also be in the service yard) and mounted such that the top of the switch is no more than 6'-6" above grade. All switches associated with equipment mounted above a lay-in ceiling shall also be located above the lay-in ceiling.
- D. Coordinate safety and disconnect switch installation with surrounding equipment to provide unobstructed access to the switch (4 foot clearance) and to insure that the switch is within sight of the controller or driven equipment.

3.2 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA STD ATS, except Section 4.
- B. Perform inspections and tests listed in NETA STD ATS, Section 7.5.
- C. Touch-up scratched or marred surfaces to match original finish.

- D. Clean all debris from enclosure interiors.

3.3 LABELING

- A. Provide nameplates on all switch enclosures wherein new circuits are modified or installed. Indicate the following information:
 1. Equipment Switch Serves.
 2. Branch Circuit.
 3. Normal (Black with white letters)
 4. Voltage, phase, wire, short circuit current rating
 5. Date installed

3.4 CLEARANCE AND WORKSPACE

- A. Maintain workspace and clearances as required by the NEC for the voltage encountered. No pipes or ducts shall pass above the outline of the switch enclosure. It shall be the responsibility of this Contractor to make sure that other trades do not encroach on this space.

END OF SECTION 262816

SECTION 264300 – SURGE PROTECTIVE DEVICES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 QUALITY ASSURANCE

- A. Reference Standard: Comply with the latest edition of the applicable provisions and recommendations of the following, except as otherwise stated in this document:
 1. UL 1449 3rd Edition 2009 Revision
 2. UL 1283.
 3. ANSI/IEEE C62.41, Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.
 4. ANSI/IEEE C62.45, Guide for Surge Testing for equipment connected to Low-Voltage AC Power Circuits.
 5. IEEE 1100 Emerald Book.
 6. National Fire Protective Association (NFPA 70: National Electrical Code).

1.3 WARRANTY

- A. Provide a 5 year product warranty

PART 2 - PRODUCTS

2.1 BASIS OF DESIGN

- A. Acceptable manufacturers, contingent upon compliance with the contract documents, are as listed below. Bidders shall carefully review the requirements listed in the technical specifications and only submit products that are equal or better. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed in the front end specifications and approved by the A/E. Bidders shall carefully review the front end documents and submit all information required to allow the A/E the ability to make a fully informed decision.

1. Current Technology – or equal
2. Acceptable Manufacturers: Current Technology, Liebert, & Schneider.

2.2 ELECTRICAL REQUIREMENTS

- A. Declared Maximum Continuous Operating Voltage (MCOV) shall be greater than 115 percent of the nominal system operating voltage and in compliance with test and evaluation procedures outlined in the nominal discharge surge current test of UL1449 3rd Edition, section 37.7. MCOV values claimed based on the component's value or on the 30-minute 115% operational voltage test, section 38 in UL1449 will not be accepted.

- B. Unit shall have not more than 10% deterioration or degradation of the UL1449 3rd Edition Voltage Protective Rating (VPR) due to repeated surges. Unit shall have a monitoring option available to be able to test and determine the percentage of protective available at all times.
- C. Protection Modes: SVR(6kV, 500A) and UL1449 3rd Edition VPR(6kV, 3kA) for grounded WYE/delta and High Leg Delta circuits with voltages of (480Y/277), (208Y/120), (600Y/347) 3-Phase/4 wire and (120/240) Split phase/3 wire circuits shall be as follows and comply with test procedures outlined in UL1449 3rd Edition section 37.6.

System Voltage	Mode	MCOV	B3 Ringwave	C3 Comb. Wave	UL 1449 Second Edition SVR Rating	UL 1449 Third Edition VPR Rating
120/240 120/208	L-N	150	325/375	650/775	400/400	700/700
	L-G	150	400/450	650/825	500/500	700/700
	N-G	150	350/350	500/500	500/500	900/900
	L-L	300	400/500	950/1250	700/700	900/900
277/480	L-N	320	550/600	1125/1225	900/900	1000/1000
	L-G	320	850/875	1075/1225	1000/1000	1200/1200
	N-G	320	700/700	900/900	800/800	1200/1200
	L-L	550	650/750	1950/2200	1500/1500	1800/1800

- D. Electrical Noise Filter- each unit shall include a high performance EMI/RFI noise rejection filter. Noise attenuation for electric noise shall be as follows using the MIL-STD-220B insertion loss test method.
 - 1. 100 kHz at 44 db or better.
 - 2. All other frequencies should be 32 db or better.
- E. Each fuse shall be individually sealed in a manner that eliminates the potential for cross arcing.
- F. Each unit shall provide the following features:
 - 1. Phase Indicator lights, Form C dry contacts, surge counter and audible alarm.
 - 2. Field testable while installed.
 - 3. Measuring capability to indicate the percent protective available in SPD.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. SPD shall be installed per manufacturer’s installation instructions with lead lengths as short (less than 24”) and straight as possible. Gently twist conductors together.
- B. Provide a circuit breaker in the electrical panel in accordance with manufacturer’s installation instructions.
- C. The UL 1449 Voltage Protective Rating (VPR) shall be permanently affixed to the SPD unit.
- D. The UL 1449 Nominal Discharge Surge Current Rating shall be a minimum of 20kA.

- E. Surge Current Rating of device shall be as noted on drawings.
- F. The SCCR rating of the SPD shall be 200kAIC without requiring an upstream protective device for safe operation.
- G. The unit shall be listed as a Type 1 SPD, suitable for use in both Type 1 and Type 2 locations per UL1449 3rd Edition.

END OF SECTION 264300

SECTION 265100 – LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
 - 1. Luminaires and accessories.
 - 2. Luminaire accessories.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70 and NFPA 101.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.4 REFERENCE STANDARDS

- A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; current edition.
- B. ANSI C78.377 – American National Standard for Electric Lamps – Specifications for the Chromaticity of Solid State Lighting Products.
- C. IESNA LM-63 - ANSI Approved Standard File Format for Electronic Transfer of Photometric Data and Related Information; current edition.
- D. IESNA LM-79-08 – Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products.
- E. IESNA LM-80-08 – Approved Method: Measuring Lumen Maintenance of LED Light Sources.
- F. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; National Electrical Contractors Association; current edition.
- G. NEMA WD 6 - Wiring Devices - Dimensional Requirements; National Electrical Manufacturers Association; current edition.
- H. NFPA 70 - National Electrical Code; National Fire Protection Association, current edition.

PART 2 - EXECUTION

2.1 INSTALLATION

- A. Install fixtures securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting).
- B. Install suspended luminaires using pendants supported from swivel hangers. Provide pendant length required to suspend luminaire at indicated height.
- C. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.
- D. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.
- E. Install recessed luminaires to permit removal from below.
- F. Install accessories furnished with each luminaire.
- G. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.
- I. Install specified lamps in each luminaire.

2.2 FIELD QUALITY CONTROL

- A. Perform field inspection in accordance with Section 01 40 00.
- B. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

2.3 ADJUSTING

- A. Aim and adjust luminaires as indicated.
- B. Position exit sign directional arrows as indicated.

2.4 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosures.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

2.5 CLOSEOUT ACTIVITIES

- A. Demonstrate luminaire operation for minimum of two hours.

2.6 PROTECTION

- A. Replace/Repair luminaires that have failed at Substantial Completion.

END OF SECTION 265100

SECTION 265600 – EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to Section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70 and NFPA 101.
- B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.3 REFERENCE STANDARDS

- A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; current edition.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association, current edition.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Poles: Do not store poles on ground. Store poles so they are at least 305 mm (one foot) above ground level and growing vegetation. Do not remove factory-applied pole wrappings until just before installing pole.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. As scheduled or listed on the contract documents. Acceptable manufacturers, contingent upon compliance with the contract documents, are as follows: Philips Hadco, and Oracle. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed elsewhere in the Bid Documents and approved by the A/E & Owner.

2.2 LUMINAIRES

- A. Furnish products as indicated in Schedule on the contract documents.
- B. UL 1598 and NEMA C136.17. Luminaries shall be weatherproof, heavy duty, outdoor types designed for efficient light utilization, adequate dissipation of driver heat and safe cleaning.
- C. Lenses shall be frame-mounted heat-resistant, borosilicate glass, prismatic refractors. Attach the frame to the luminaire housing by hinges or chain. Use heat and aging resistant resilient gaskets to seal and cushion lenses and refractors in luminary doors.
- D. Materials shall be rustproof. Latches and fittings shall be non-ferrous metal.

- E. IESNA Cutoff Category: cutoff

2.3 POLES

- A. Furnish products as indicated in Schedule on the contract documents.
- B. The pole and arm assembly shall be designed for wind loading of 100 miles per hour, with an additional 30 percent gust factor, supporting luminaire(s) having the effective projected areas indicated. The effective projected area of the pole shall be applied at the height of the pole base as shown on the drawings.
- C. Poles shall be anchor-bolt type designed for use with underground supply conductors. Poles shall have oval-shaped handhole having a minimum clear opening of 2.5 by 5 inches. Handhole cover shall be secured by stainless steel captive screws.
- D. Provide a steel-grounding stud opposite hand hole openings
- E. Provide a base cover matching the pole in material and color to conceal the mounting hardware pole-base welds and anchor bolts
- F. Hardware: All necessary hardware shall be 300 series stainless steel.
- G. Aluminum: Provide aluminum poles manufactured of corrosion resistant AA AAH35.1 aluminum alloys conforming to AASHTO LTS-4 for Alloy 6063-T6 or Alloy 6005-T5 for wrought alloys, and Alloy 356-T4 (3,5) for ASTM B108-03 cast alloys. Poles shall be seamless extruded or spun seamless type. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire. Base covers for aluminum poles shall be cast from 356-T6 aluminum alloy in accordance with ASTM B108-03
- H. Steel: Provide steel poles having minimum 11-gage steel with minimum yield/strength of 48,000 psi and //hot-dipped galvanized// //iron-oxide primed// factory finish. //Galvanized steel poles shall comply with ASTM A123 and A153.// Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire. Base covers for steel poles shall be structural quality hot-rolled carbon steel plate having a minimum yield of 36,000 psi.

2.4 FOUNDATIONS FOR POLES

- A. Foundations shall be cast-in-place concrete.
- B. Foundations shall support the effective projected area of the specified pole, arm(s), and luminaire(s) under wind conditions previously specified in this section.
- C. Place concrete in spirally wrapped treated paper forms.
- D. Rub-finish and round all above-grade concrete edges to approximately 1/4 inch radius.
- E. Concrete shall have 3000 psi minimum 28 day compressive strength.
- F. Anchor bolt assemblies and reinforcing of concrete foundations shall be as shown on the

drawings and meet ACI 318. Anchor bolts shall be in a welded cage or properly positioned by the tie wire to stirrups.

- G. Prior to concrete pour, install a copperclad steel ground rod, not less than 3/4-inch diameter by 10 feet long, below each foundation. Drive the rod vertically under the foundation so not less than 6 feet of rod is in contact with the earth. Remainder of rod may be in the concrete pour. Where rock or layered rock is present, drill a hole not less than 2 inches in diameter and 6 feet deep, backfill with tamped fine sand and drive the rod into the hole. Bond the rod to the pole with not less than number 6 AWG bare copper wires.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lighting in accordance with the NEC, as shown on the drawings, and in accordance with manufacturer's recommendations.
- B. Poles:
 - 1. Provide pole foundations with galvanized steel anchor bolts, threaded at the top end and bent 90 degrees at the bottom end. Provide galvanized nuts, washers, and ornamental covers for anchor bolts. Thoroughly compact backfill with compacting arranged to prevent pressure between conductor, jacket, or sheath and the end of conduit. Adjust poles as necessary to provide a permanent vertical position with the bracket arm in proper position for luminaire location.
 - 2. After the poles have been installed, shimmed and plumbed, grout the spaces between the pole bases and the concrete base with non-shrink concrete grout material. Provide a plastic or copper tube, of not less than 3/8-inch inside diameter, through the grout tight to the top of the concrete base for moisture weeping.
- C. Foundation Excavation: Depth shall be as indicated. Dig holes large enough to permit the proper use of tampers to the full depth of the hole. Place backfill in the hole in 6 inch maximum layers and thoroughly tamp. Place surplus earth around the pole in a conical shape and pack tightly to drain water away.
- D. Install fixtures securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting).
- E. Install accessories furnished with each luminaire.
- F. Connect luminaires and exit signs to branch circuit outlets provided under Section 26 05 37 using flexible conduit.
- G. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.
- I. Install specified lamps in each emergency lighting unit, exit sign, and luminaire.

3.2 GROUNDING

- A. Ground noncurrent-carrying parts of equipment including metal poles, luminaires, mounting arms, brackets, and metallic enclosures as specified in Section 26 05 26. Where copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable and listed for this purpose.

3.3 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

- A. Aim and adjust luminaires as indicated.
- B. Position exit sign directional arrows as indicated.

3.5 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosures.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

3.6 CLOSEOUT ACTIVITIES

- A. Demonstrate luminaire operation for minimum of two hours.

3.7 PROTECTION

- A. Replace/Repair luminaires that have failed at Substantial Completion.

END OF SECTION 265600

CABLING SCOPE TO BE DONE BY OTHERS. SPEC SHOWN FOR REFERENCE ONLY

SECTION 270500 - COMMON WORK RESULTS FOR COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. All division 27 work shall, in addition to all division 1 specification sections, comply with all of the requirements in the following specification sections:

260500 Common Work Results for Electrical
260501 Electrical Demolition
260510 Electrical Submittals
260511 Electrical Work Closeout
260512 Electrical Coordination
260519 Low-Voltage Electrical Power Conductors and Cables
260526 Grounding and Bonding for Electrical Systems
260529 Hangers and Supports for Electrical Systems
260533 Raceway and Boxes for Electrical Systems
260548 Vibration and Seismic Controls for Electrical Systems
262726 Wiring Devices

1.2 COORDINATION

- A. CCU ITs must approve any deviation from the specifications in this document. All communications, correspondence, and approvals must be conveyed through the official project contacts of record such as the Architect and Construction Manager.
- B. All Division 27 Contractor Project Managers shall schedule and conduct a coordination meeting with CCU ITS to confirm and coordinate scope of work requirements prior to commencement of work whether project is new construction, renovation, or retrofit. Project meetings shall be scheduled through the General Contractor, Construction Manager, or CCU Facilities Services depending upon how the project management process is structured in each instance.
- C. The Contractor shall submit a work schedule before any work begins. This schedule shall identify the major phases of the installation. The Architect or Construction Manager shall review the schedule with CCU ITS and CCU Facilities representatives, identify inspection requirements based on phasing and request any required modifications to the installation schedule. When the installation plan is finalized and approved, work may begin.

1.3 SUBMITTALS

- A. Work shall not proceed without CCU approval of all submitted items.

1.4 QUALITY ASSURANCE

- A. Cabling Contractor shall provide with bid an RCDD and Installer-level BICSI Certification. A minimum of one (1) permanent crew member shall be BICSI Installer Level II as well as manufacturer certified. Twenty-five percent (25%) of installation force shall be BICSI Installer Level I. Work crew, not involved in installing cable elements (e.g. laborers delivering/moving materials, installing grounding by an electrician, or workers installing pathway elements) do not require BICSI or manufacturer certification or registration.
- B. Only installers trained and certified by the proposed manufacturer shall be allowed to terminate and test optical fiber. Others specified above may pull/place optical fiber cable under the supervision of an installer trained and certified by the manufacturer.

1.5 SYSTEM WARRANTY

- A. The Contractor shall provide a single manufacturer 25-year system performance warranty covering the installed cabling system against defects in workmanship, components and performance, and follow-up support after project completion. Project must be registered with Commscope prior to start of work. All documentation of the 25-year system performance coverage and 25-year component coverage must be provided to CCU prior to completion of project. During the warranty period, and for non-conformities of which contractor has notice, contractor shall take all necessary and appropriate action; free of charge, to correct any non-conformity with the warranties contained in the manufacturer agreement. During the warranty period, contractor shall provide to CCU, free of costs and charges, all support necessary to ensure that the cabling system meets the requirements specified in this document and performance guarantees provided by the contractors. During the warranty period, contractors shall furnish, or cause to be furnished, all maintenance, service, parts and replacements necessary to maintain the cabling system in good working condition, at no cost to CCU.
- B. All deficiencies shall be corrected within a period of forty-eight (48) hours.

END OF SECTION 270500

CABLING SCOPE TO BE DONE BY OTHERS. SPEC SHOWN FOR REFERENCE ONLY

SECTION 271300 - COMMUNICATIONS BACKBONE CABLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Pathways.
 - 2. UTP cable. (Riser)
 - 3. Optical fiber cabling.
 - 4. Cable connecting hardware, patch panels, and cross-connects.
 - 5. Cabling identification products.

1.2 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- C. EMI: Electromagnetic interference.
- D. IDC: Insulation displacement connector.
- E. LAN: Local area network.
- F. RCDD: Registered Communications Distribution Designer.
- G. UTP: Unshielded twisted pair.

1.3 BACKBONE CABLING DESCRIPTION

- A. Backbone cabling system shall provide interconnections between communications equipment rooms, main terminal space, and entrance facilities in the telecommunications cabling system structure. Cabling system consists of backbone cables, intermediate and main cross-connects, mechanical terminations, and patch cords or jumpers used for backbone-to-backbone cross-connection.
- B. Backbone cabling cross-connects may be located in communications equipment rooms or at entrance facilities. Bridged taps and splitters shall not be used as part of backbone cabling.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Backbone cabling system shall comply with transmission standards in TIA/EIA-568-B.1, when tested according to test procedures of this standard.
- B. Communication contractor shall be a CommScope authorized Uniprise contractor

The project must be registered with CommScope in order to provide a complete 25 year Extended Product and Application Warranty. Warranty documentation must be provided to owner.

1.5 SUBMITTALS

- A. See Section 260510.

1.6 MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Patch-Panel Units: One of each type. (Commscope: 760237041 CPPA-UDDM-SL-2U).
 - 2. Connecting Blocks: One of each type. (Commscope: 569440-1).

1.7 QUALITY ASSURANCE.

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 - 1. Layout Responsibility: Preparation of Shop Drawings and Cabling Administration Drawings, Cabling Administration Drawings, and field testing program development by an RCDD.
 - 2. Installation Supervision: Installation shall be under the direct supervision of Level 2 Installer, who shall be present at all times when Work of this Section is performed at Project site.
 - 3. Testing Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- B. Testing Agency Qualifications: An NRTL.
 - 1. Testing Agency's Field Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 814 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A.

F. Grounding: Comply with ANSI-J-STD-607-A.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
 - 1. Test optical fiber cable to determine the continuity of the strand end to end. Use optical fiber flashlight or optical loss test set.

2. Test optical fiber cable while on reels. Use an optical time domain reflectometer to verify the cable length and locate cable defects, splices, and connector, including the loss value of each. Retain test data and include the record in maintenance data.
3. Test each pair of UTP cable for open and short circuits.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.10 COORDINATION

- A. Coordinate layout and installation of telecommunications pathways and cabling with Owner's telecommunications and LAN equipment and service suppliers.

PART 2 - PRODUCTS

2.1 PATHWAYS

- A. General Requirements: Comply with TIA/EIA-569-A.
- B. Cable Support: NRTL labeled for support of Category 6 cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 1. Support brackets with cable tie slots for fastening cable ties to brackets.
 2. Lacing bars, spools, J-hooks, and D-rings.
 3. Straps and other devices.
 4. Cable tray.

2.2 BACKBOARDS

- A. Backboards: Communication backboard (TBB) shall be 8'H x 4'L x 3/4"D plywood with the bottom at 6" AFF. Extend a No. 6 bare copper grounding conductor from the electrical service ground to the backboard and leave with sufficient slack to reach any place thereon. Coat backboard with a minimum of two coats fire retardant paint.

2.3 UTP CABLE

- A. Manufacturers: Basis of Design is Commscope.
- B. Description: 100-ohm, 50 -pair UTP, formed into 25-pair binder groups covered with a gray thermoplastic jacket and overall metallic shield.
 1. Comply with ICEA S-90-661 for mechanical properties.
 2. Comply with TIA/EIA-568-B.1 for performance specifications.
 3. Comply with TIA/EIA-568-B.2, Category 6.
 4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:
 - a. Multipurpose, Riser Rated: Type MPR or MP, complying with UL 1666.

2.4 UTP CABLE HARDWARE

- A. General Requirements for Cable Connecting Hardware: Comply with TIA/EIA-568-B.2, IDC type, with modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of same category or higher.
- B. Connecting Blocks: 110-style (Commscope: 569440-1). Provide blocks for the number of cables terminated on the block, plus 25 percent spare. Integral with connector bodies, including plugs and jacks where indicated.
- C. Patch Panel: Modular panels housing multiple-numbered jack units with IDC-type connectors at each jack for permanent termination of pair groups of installed cables.

2.5 Number of Jacks per Field: (Commscope: 760237628 USL600-BLUE Cat 6 jack). One for each four-pair conductor group of indicated cables, plus 25% spares.

2.6 Patch panel shall be Commscope part number 760237043 CPPA-UDDM-SL-2U 48 port angled patch panel.

- A. Patch Cords: Factory-made, four-pair cables in 5', 7', and 10' lengths; terminated with eight-position modular plug at each end. UC1BBB2-005, UC1BBB2-007, UC1BBB2-010.
 - 1. Patch cords shall have bend-relief-compliant boots and color-coded icons to ensure Category 6 performance. Patch cords shall have latch guards to protect against snagging.
 - 2. Patch cords shall have color-coded boots for circuit identification.
 - 3. Provide one patch cord for each connection plus 10% spare. I.E. One patch cord for each connection in the data rack and one patch cord for each connection at the user end.
 - 4. Quantity of patch cords shall be divided between the multiple lengths as follows: 5' = 20 percent, 7' = 30 percent, and 10' = 50 percent.

2.7 OPTICAL FIBER CABLE

- A. Basis of design is Corning Cable and Commscope.
- B. Description: Singlemode Armored Fiber Cable (8.3/125-micrometer), Multimode Armored Fiber Cable (62.5/125-micrometer and 50/125-micrometer). Install strand count as shown.
 - 1. Comply with ICEA S-83-596 for mechanical properties.
 - 2. Comply with TIA/EIA-568-B.3 for performance specifications.
 - 3. Comply with TIA/EIA-492AAAA-B for detailed specifications.
 - 4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444, UL 1651, and NFPA 70 for the following types:
 - a. Plenum Rated, Nonconductive: Type OFNP, complying with NFPA 262.
 - 5. Maximum Attenuation: 3.5 dB/km at 850 nm; 1.5 dB/km at 1300 nm.
 - 6. Minimum Modal Bandwidth: 160 MHz-km at 850 nm; 500 MHz-km at 1300 nm.
 - 7. Provide SC connectors on all fiber
 - 8. Provide the last two single mode strands of each fiber run between each I.T. room with a fusion splice into a SC/APC pigtail for CATV.
 - 9. Terminate all fiber onto rack mounted enclosures.
 - 10. Provide rack mounted enclosures for the fiber terminations in each data rack.

2.8 OPTICAL FIBER CABLE HARDWARE

- A. Cross-Connects and Patch Panels: Modular panels housing multiple-numbered, duplex cable connectors.
 - 1. Number of Connectors per Field: One for each fiber of cable or cables assigned to field, plus spares and blank positions adequate to suit specified expansion criteria. Quick II connectors.
 - 2. All fiber terminals shall be rack mounted.
- B. Cable Connecting Hardware:
 - 1. Comply with Optical Fiber Connector Intermateability Standards (FOCIS) specifications of TIA/EIA-604-2, TIA/EIA-604-3-A, and TIA/EIA-604-12. Comply with TIA/EIA-568-B.3.
 - 2. Quick-connect, simplex and duplex, Type SC connectors. Insertion loss not more than 0.75 dB.

2.9 GROUNDING

- A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems" for grounding conductors and connectors.
- B. Comply with ANSI-J-STD-607-A.

2.10 IDENTIFICATION PRODUCTS

- A. Comply with TIA/EIA-606-A and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

2.11 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to evaluate cables.
- B. Factory test cables on reels according to TIA/EIA-568-B.1.
- C. Factory test UTP cables according to TIA/EIA-568-B.2.
- D. Factory test multimode optical fiber cables according to TIA/EIA-526-14-A and TIA/EIA-568-B.3.
- E. Cable will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 ENTRANCE FACILITIES

- A. Coordinate backbone cabling with the protectors and demarcation point provided by communications service provider.

3.2 WIRING METHODS

- A. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters. Conceal raceway and cables except in unfinished spaces.

1. Install plenum cable in environmental air spaces, including plenum ceilings.
2. Comply with requirements for raceways and boxes specified in Section 260533 "Raceway and Boxes for Electrical Systems."

B. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures: Bundle, lace, and train cables within enclosures. Connect to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.3 INSTALLATION OF PATHWAYS

A. Cable Trays: Comply with NEMA VE 2 and TIA/EIA-569-A.

B. Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.

C. Comply with requirements in Section 260533 "Raceway and Boxes for Electrical Systems" for installation of conduits and wireways.

D. Install manufactured conduit sweeps and long-radius elbows whenever possible.

E. Pathway Installation in Communications Equipment Rooms:

1. Position conduit ends adjacent to a corner on backboard where a single piece of plywood is installed, or in the corner of room where multiple sheets of plywood are installed around perimeter walls of room.
2. Install cable trays to route cables if conduits cannot be located in these positions.
3. Secure conduits to backboard when entering room from overhead.
4. Extend conduits 3 inches above finished floor.
5. Install metal conduits with grounding bushings and connect with grounding conductor to grounding system.

F. Backboards: Install backboards with 96 inch dimension vertical. Butt adjacent sheets tightly, and form smooth gap-free corners and joints.

3.4 INSTALLATION OF CABLES

A. Comply with NECA 1.

B. General Requirements for Cabling:

1. Comply with TIA/EIA-568-B.1.
2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
5. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.

6. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
 7. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Use lacing bars and distribution spools.
 8. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 9. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 10. In the communications equipment room, install a 10-foot long service loop on each end of cable.
 11. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
- C. UTP Cable Installation:
1. Comply with TIA/EIA-568-B.2.
 2. Do not untwist UTP cables more than 1/2 inch from the point of termination to maintain cable geometry.
- D. Optical Fiber Cable Installation:
1. Comply with TIA/EIA-568-B.3.
 2. Cable may be terminated on connecting hardware that is rack or cabinet mounted.
 3. Provide Velcro ties. Ties shall be used for securing fiber cable.
- E. Open-Cable Installation:
1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
 2. Suspend UTP cable not in a wireway or pathway, a minimum of 8 inches above ceilings by cable supports not more 48 inches apart.
 3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
- F. Group connecting hardware for cables into separate logical fields.

3.5 GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with ANSI-J-STD-607-A.
- C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.
- D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.6 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
 - 1. Administration Class: 4.
 - 2. Color-code cross-connect fields and apply colors to voice and data service backboards, connections, covers, and labels.
- B. Paint and label colors for equipment identification shall comply with TIA/EIA-606-A for Class 4 level of administration including optional identification requirements of this standard.
- C. Comply with requirements in Section 271500 "Communications Horizontal Cabling" for cable and asset management software.
- D. Cable Schedule: Install in a prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- E. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, backbone pathways and cables, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors.
- F. Cable and Wire Identification:
 - 1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
 - 2. Each wire connected to building-mounted devices is not required to be numbered at device if color of wire is consistent with associated wire connected and numbered within panel or cabinet.
 - 3. Exposed Cables and Cables in Cable Trays and Wire Troughs: Label each cable at intervals not exceeding 15 feet.
 - 4. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
 - a. Individually number wiring conductors connected to terminal strips and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device with name and number of particular device as shown.
 - b. Label each unit and field within distribution racks and frames.
 - 5. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.
- G. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in TIA/EIA 606-A, for the following:
 - 1. Cables use flexible vinyl or polyester that flexes as cables are bent.

3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Visually inspect UTP and optical fiber jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA/EIA-568-B.1.
 - 2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 - 3. Test UTP copper cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - 4. Optical Fiber Cable Tests:
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.1. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - b. Link End-to-End Attenuation Tests:
 - 1) Horizontal and multimode backbone link measurements: Test at 850 or 1300 nm in 1 direction according to TIA/EIA-526-14-A, Method B, One Reference Jumper.
 - 2) Attenuation test results for backbone links shall be less than 2.0 dB. Attenuation test results shall be less than that calculated according to equation in TIA/EIA-568-B.1.
- C. Data for each measurement shall be documented. Data for submittals shall be printed in a summary report that is formatted similar to Table 10.1 in BICSI TDMM, or transferred from the instrument to the computer, saved as text files, and printed and submitted.
- D. Remove and replace cabling where test results indicate that they do not comply with specified requirements.
- E. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.

END OF SECTION 271300

CABLING SCOPE TO BE DONE BY OTHERS. SPEC SHOWN FOR REFERENCE ONLY

SECTION 271500 – COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. UTP cabling.
 2. Cable connecting hardware, patch panels.
 3. Telecommunications outlet/connectors.
 4. Cabling system identification products.

1.2 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. Consolidation Point: A location for interconnection between horizontal cables extending from building pathways and horizontal cables extending into furniture pathways.
- C. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- D. EMI: Electromagnetic interference.
- E. IDC: Insulation displacement connector.
- F. LAN: Local area network.
- G. Outlet/Connectors: A connecting device in the work area on which horizontal cable or outlet cable terminates.
- H. UTP: Unshielded twisted pair.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate telecommunications outlet/connector locations with location of power receptacles at each work area.

1.4 SUBMITTALS

- A. Refer to section 260510.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
1. Layout Responsibility: Preparation of Shop Drawings and Cabling Administration Drawings, Cabling Administration Drawings, and field testing program development by an RCDD.
 2. Installation Supervision: Installation shall be under the direct supervision of Level 2 Installer, who shall be present at all times when Work of this Section is performed at Project site.
 3. Delete subparagraph below if Contractor performs field quality-control testing.
 4. Testing Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- B. Testing Agency Qualifications:
1. Testing Agency's Field Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 814 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency. All cable must have the following characteristics.
1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 50 or less.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- E. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A.
- F. Grounding: Comply with ANSI-J-STD-607-A.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
1. Test each pair of UTP cable for open and short circuits.

PART 2 - PRODUCTS

2.1 HORIZONTAL CABLING DESCRIPTION

- A. The maximum allowable horizontal cable length is 295 feet (90 m).
- B. Horizontal cable and its connecting hardware provide the means of transporting signals between the telecommunications outlet/connector and the horizontal cross-connect located in the

communications equipment room. This cabling and its connecting hardware are called a "permanent link," a term that is used in the testing protocols.

1. Install per TIA/EIA-B.2-1 "Performance specifications for 4-pair 100 ohm Category 6 cabling."
2. Bridged taps and splices shall not be installed in the horizontal cabling.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA/EIA-568-B.1 when tested according to test procedures of this standard.
- B. Communication contractor shall be an Commscope Uniprise contractor.
- C. The project must be registered with Commscope in order to provide a complete 25 year Extended Product and Application Warranty. Warranty documentation must be provided to owner.
- D. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 50 or less.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- F. Grounding: Comply with J-STD-607-A.

2.3 UTP CABLE

- A. Description: 100-ohm, four-pair UTP, covered with a blue thermoplastic jacket (Commscope).
 1. Comply with ICEA S-90-661 for mechanical properties.
 2. Comply with TIA/EIA-568-B.1 for performance specifications.
 3. Comply with TIA/EIA-568-B.2, Category 6.
 4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:
Communications, Plenum Rated: Type CMP complying with NFPA 262.

2.4 UTP CABLE HARDWARE

- A. General Requirements for Cable Connecting Hardware: Comply with TIA/EIA-568-B.2, IDC type, with modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of same category or higher.

- B. Jacks and Jack Assemblies: Modular, color-coded, eight-position modular receptacle units with integral IDC-type terminals.
 - 1. Provide 8-position, 8-conductor jacks Commscope part number 760237628 USL600-BLUE. Fill vacant positions with blank insert Commscope part number 1116412-3.
 - 2. Faceplates shall be white in color. Provide Commscope part number 2111012-3 4 port white faceplate.

- C. Patch Cords: Factory-made, four-pair cables in 5', 7', and 10' lengths; terminated with eight-position modular plug at each end.
 - 1. Patch cords shall have bend-relief-compliant boots and color-coded icons to ensure Category 6 performance. Patch cords shall have latch guards to protect against snagging.
 - 2. Patch cords shall have color-coded boots for circuit identification.
 - 3. Provide one patch cord for each user end connection plus 10% spare. I.E. One patch cord for each connection in the data rack and one patch cord for each connection at the user end.
 - 4. Quantity of patch cords shall be divided between the multiple lengths as follows: 5' = 20 percent, 7' = 30 percent, and 10' = 50 percent.

2.5 GROUNDING

- A. Comply with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" for grounding conductors and connectors.

- B. Comply with J-STD-607-A.

2.6 IDENTIFICATION PRODUCTS

- A. Comply with TIA/EIA-606-A and UL 969 for labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

- B. Comply with requirements in Division 26 Section "Identification for Electrical Systems."

PART 3 - EXECUTION

3.1 WIRING METHODS

- A. Install cables in pathways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces. Conceal pathways and cables except in unfinished spaces.
 - 1. Install plenum cable in environmental air spaces, including plenum ceilings.

2. Comply with requirements in Division 260533 Section "Raceway and Boxes for Electrical Systems."

B. Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

C. Wiring within Enclosures:

1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
2. Install lacing bars and distribution spools.
3. Install conductors parallel with or at right angles to sides and back of enclosure.

3.2 INSTALLATION OF CABLES

A. Comply with NECA 1.

B. General Requirements for Cabling:

1. Comply with TIA/EIA-568-B.1.
2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
3. Install 66-style IDC termination hardware unless otherwise indicated.
4. MUTOA shall not be used as a cross-connect point.
5. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
6. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
7. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
8. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
10. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
11. In the communications equipment room, install a 10-foot long service loop on each end of cable.
12. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
13. Cables shall be installed in continuous lengths from origin to destination (no splices) unless specifically addressed in this document.

14. Where cable splices are allowed, they shall be in accessible locations and housed in an enclosure intended and suitable for the purpose.
15. If a J-hook or trapeze system is used to support cable bundles all horizontal cables shall be supported at a maximum of five-foot intervals - at no point shall cable(s) rest on acoustic ceiling grids or panels.
16. Horizontal distribution cables shall be bundled in groups of not greater than 40 cables (cable bundle quantities in excess of 40 cables may cause deformation of the bottom cables within the bundle).
17. Panel terminations shall be fed by and individual bundle separated and dressed back to the point of cable entrance into the rack or frame.
18. Cable shall be installed above fire-sprinkler and systems and shall not be attached to the system or any ancillary equipment or hardware.
19. The cabling system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.
20. Cables shall not be attached to ceiling grid or lighting support wires.
21. Pulling tension on 4-pair UTP cables shall not exceed 25-pounds for a single cable or cable bundle.
22. Unshielded twisted pair cable shall be installed so that there are no bends less than four times the cables outside diameter (4 X cable O.D.) at any point in the run.
23. Cables shall be identified by a self-adhesive label in accordance the specifications.
24. The cable label shall be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate. Cable labels shall not be obscured from view.

C. UTP Cable Installation:

1. Comply with TIA/EIA-568-B.2.
2. Do not untwist UTP cables more than 1/2 inch from the point of termination to maintain cable geometry.

D. Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend UTP cable not in a wireway or pathway a minimum of 8 inches above ceilings by cable supports not more than 60 inches apart.
3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
4. Cable shall not rest on or make contact with any other system.

E. Group connecting hardware for cables into separate logical fields.

3.3 GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with J-STD-607-A.
- C. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.4 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
 - 1. Administration Class: 4.
 - 2. Color-code cross-connect fields. Apply colors to voice and data service backboards, connections, covers, and labels.
- B. Using cable management system software specified in Part 2, develop Cabling Administration Drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable and label cable, jacks, connectors, and terminals to which it connects with same designation. At completion, cable and asset management software shall reflect as-built conditions.
- C. Paint and label colors for equipment identification shall comply with TIA/EIA-606-A for Class 4 level of administration, including optional identification requirements of this standard.
- D. Cable Schedule: Post in prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- E. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, backbone pathways and cables, entrance pathways and cables, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of TIA/EIA-606-A. Furnish electronic record of all drawings, in software and format selected by Owner.
- F. Cable and Wire Identification:
 - 1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.

2. Each wire connected to building-mounted devices is not required to be numbered at device if color of wire is consistent with associated wire connected and numbered within panel or cabinet.
3. Exposed Cables and Cables in Cable Trays and Wire Troughs: Label each cable at intervals not exceeding 15 feet
4. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.
5. Uniquely identify and label work area cables extending from the MUTOA to the work area. These cables may not exceed the length stated on the MUTOA label.

G. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in TIA/EIA-606-A.

1. Cables use flexible vinyl or polyester that flex as cables are bent.

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections

1. Visually inspect UTP and optical fiber cable jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA/EIA-568-B.1.
2. Visually confirm Category 6, marking of outlets, cover plates, outlet/connectors, and patch panels.
3. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
4. UTP Performance Tests:
 - a. Test for each outlet. Perform the following tests according to TIA/EIA-568-B.1 and TIA/EIA-568-B.2:
 - 1) Wire map.
 - 2) Length (physical vs. electrical, and length requirements).
 - 3) Insertion loss.
 - 4) Near-end crosstalk (NEXT) loss.
 - 5) Power sum near-end crosstalk (PSNEXT) loss.
 - 6) Equal-level far-end crosstalk (ELFEXT).
 - 7) Power sum equal-level far-end crosstalk (PSELFEXT).
 - 8) Return loss.
 - 9) Propagation delay.
 - 10) Delay skew.
5. Final Verification Tests: Perform verification tests for UTP after the complete communications cabling and workstation outlet/connectors are installed.

- a. Data Tests: These tests assume the Information Technology Staff has a network installed and is available to assist with testing. Connect to the network interface device at the demarcation point. Log onto the network to ensure proper connection to the network.

- B. Document data for each measurement. Data for submittals shall be printed in a summary report that is formatted similar to Table 10.1 in BICSI TDMM, or transferred from the instrument to the computer, saved as text files, and printed and submitted.

- C. End-to-end cabling will be considered defective if it does not pass tests and inspections.

- D. Prepare test and inspection reports.

END OF SECTION 271500