PROJECT MANUAL

HAMPTON COUNTY
SCHOOL DISTRICT

HAMPTON COUNTY SCHOOL DISTRICT

HAMPTON COUNTY HIGH SCHOOL – PHASE 2

~~1682~~ 1585 SAVANNAH HIGHWAY
HAMPTON, SC 29924

CONSTRUCTION DOCUMENTS — **VOLUME 1 OF 2**
OCTOBER 31, 2025 — DIVISION 00 - 13

ARCHITECT

LS3P ARCHITECTURE • INTERIORS • PLANNING

205-1/2 KING STREET
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LS3P COMMISSION NO.: 1201-217190

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CONSTRUCTION DOCUMENTS **VOLUME 2 OF 2**
OCTOBER 31, 2025 DIVISION 21 - 33

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DOCUMENT 001116 - INVITATION TO BID

1.1 PROJECT INFORMATION

A. Notice to Bidders: Selected Bidders are invited to submit Bids for Project as described in this Document in accordance with the Instructions to Bidders.

B. Project Identification: Hampton County High School – Phase 2; 1201-217190

1. Project Location: Hampton County High School, ~~1682~~ 1585 Savannah Highway, Hampton, SC 29924.

C. Owner: Hampton County School District:

1. Main Office: 372 Pine Street East, Varnville, SC 29944.

a. Owner's Representative: Dr. Glenda Sheffield, Superintendent; (803) 943-4576; gsheffield@hcsdsc.org.

D. Architect: LS3P ASSOCIATES LTD., 205-1/2 King Street, Charleston, SC 29401; (843) 577-4444.

1. Architect’s Representative: Nikos Katsibas AIA, Architect, Associate Principal.

E. Project Description: Scope of Work includes an athletics complex for Hampton County High School. The work is broken into a base bid and various add alternates. The base bid includes two practice fields, a field house, baseball field with dugouts and a softball field with dugouts. The alternates include a weight room addition to the field house, various supporting structures for baseball and softball, tennis courts, a prefabricated greenhouse, a competition football field, track and field events, a 3,000 seat stadium and a concession building with restrooms.

F. Construction Contract: Bids will be received for the following Work: General Contract (all trades).

1.2 BID SUBMITTAL AND OPENING

A. Bid Submittal, Printed: Owner will receive sealed Bids until the bid time and date at the location indicated below. Owner will consider Bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:

1. Bid Date: ~~**December 8, 2025**~~ **December 9, 2025.**
2. Bid Time: ~~**11:00 a.m.**~~ **2:00 p.m., local time.**
3. Location: **Hampton County School District Office, 372 Pine Street, East, Varnville, SC 29944.**
4. Bids will be thereafter opened in the presence of the Bidders and read aloud.

1.3 BID SECURITY

A. Submit bid security with each Bid in the stipulated form and in the amount identified in the Instructions to Bidders.

B. PROTEST PERIOD:

1. **Following the Bid Opening, a protest period shall last 10 days from December 16, 2025, until January 2, 2026 (Business Days Minus Holidays).**

1.4 PREBID MEETINGS

A. Prebid Meeting: See Document 002513 "Prebid Meetings."

1. Prebid Meeting, In Person: **A prebid meeting for all Bidders will be held at Hampton County School District Office, 372 Pine Street, East, Varnville, SC 29944 on November 10, 2025, at 2 p.m.** Prospective prime Bidders are requested to attend.

B. Bidders' Questions: Architect will provide responses at Prebid conference to Bidders' questions received up to two business days prior to conference. Submit requests for clarification and interpretation using method indicated in Instructions to Bidders.

C. Site Walkthrough Meeting: **A site walkthrough meeting for all Bidders will be held at Project Site on November 10, 2025, at 3:30 p.m., local time immediately following the Prebid Meeting**. Prospective prime Bidders are requested to attend. Register for Site Walkthrough Meeting as follows: N/A.

1.5 BIDDING DOCUMENTS

A. Bidding Documents, Printed: **Obtain after November 5, 2025 by contacting Hampton County School District Only complete sets of documents will be issued.**

1. **Construction Documents dated October 31, 2025**
2. Deposit: N/A.
3. Shipping: Additional shipping charges will apply: N/A.

B. Bidding Documents, Electronic: **Obtain after November 5, 2025 by contacting Hampton County School District. Online access will be provided to all registered Bidders and Sub-Bidders and suppliers.**

1. **Construction Documents dated October 31, 2025.**

1.6 TIME OF COMPLETION

A. By submitting a Bid, Bidder represents that Bidder will begin the Work on receipt of the Notice to Proceed and will complete the Work within the Contract Time indicated in the Bidding Documents.

1.7 LIQUIDATED DAMAGES

A. Work is subject to liquidated damages.

1.8 BIDDER'S QUALIFICATIONS

A. Prequalification: Invited Bidders must have been prequalified by Owner prior to submission of Bids:

1. Portfolio of a minimum of three completed projects of similar size and scope:

a. Project name, location, description, size, cost.
b. Original cost and final cost; explain variance.
c. Contract changes.

2. References: Provide name, address, email and telephone number for three project owners.
3. Organizational chart identifying the individuals performing services outlined in Article 3 of AIA A201-2107 – General Conditions of the Contract For Construction.

B. Licenses: Bidders must be properly licensed under the laws governing their respective trades.

C. Insurance and Bonds: A Performance Bond, separate Labor and Material Payment Bond, and insurance in a form acceptable to Owner will be required of the successful Bidder.

D. Contractor's Qualification Statement: A completed AIA Document A305, "Contractor's Qualification Statement," with all exhibits is required to be submitted with the bid.

1. See Attached AIA Document A305-2020, “Contractor’s Qualification Statement,” and Exhibits A through E for reference.

END OF DOCUMENT 001116

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DRAFT AIA® Document A305® – 2020
Exhibit A

General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by « » and dated the « » day of « » in the year « »
(In words, indicate day, month and year.)

§ A.1 ORGANIZATION
§ A.1.1 Name and Location
§ A.1.1.1 Identify the full legal name of your organization.

« »

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

« »

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

« »

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

« »

§ A.1.2 Legal Status
§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

« »

.1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.

« »

.2 If your organization is a partnership, identify its partners and its date of organization.

« »

.3 If your organization is individually owned, identify its owner and date of organization.

« »

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

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

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.4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

« »

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

« »

§ A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

« »

§ A.1.3.2 How many full-time employees work for your organization?

« »

§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

« »

§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

« »

§ A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to ~~four~~ a minimum of three projects, either completed or in progress, that are representative of your organization's experience and capabilities.

§ A.2.2 State your organization's total dollar value of work currently under contract.

« »

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

« »

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

« »

§ A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

« »

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

« »

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§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.

« »

§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

« »

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

« »

§ A.4 REFERENCES

§ A.4.1 Identify three client references:
(Insert name, organization, and contact information)

« »

§ A.4.2 Identify three architect references:
(Insert name, organization, and contact information)

« »

§ A.4.3 Identify one bank reference:
(Insert name, organization, and contact information)

« »

§ A.4.4 Identify three subcontractor or other trade references:
(Insert name, organization, and contact information)

« »

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DRAFT

AIA® Document A701® – 2018

Instructions to Bidders

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

« HAMPTON COUNTY HIGH SCHOOL – PHASE 2»
«1201-217190 »

«HAMPTON COUNTY HIGH SCHOOL»
«1682 SAVANNAH HIGHWAY »
«HAMPTON, SC 29924»

THE OWNER:
(Name, legal status, address, and other information)

«HAMPTON COUNTY SCHOOL DISTRICT »« »
«372 PINE STREET EAST»
«VARNVILLE, SC 29944»
« »

THE ARCHITECT:
(Name, legal status, address, and other information)

«LS3P ASSOCIATES LTD. »« »
«205-1/2 KING STREET»
«CHARLESTON, SC 29401»
« »

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6 POST-BID INFORMATION

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8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

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

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

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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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.

§ 1.2 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 and who meets the requirements set forth in the Bidding Documents.

§ 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, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- **.5** the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- **.6** the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

« »

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper

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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 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 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.

§ 3.2 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.

§ 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 seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

« »

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

§ 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.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten 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.

§ 3.3.3 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.

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§ 3.4 Addenda

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

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

«By email notification and the district's website. »

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

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 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.

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 both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

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

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Insert the form and amount of bid security.)

«5% of Base Bid. »

§ 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. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall

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affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and 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. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning« 60 »days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

«Paper copy. »

§ 4.3.2 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 be addressed to the party receiving the Bids and 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, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 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.

§ 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.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

«Shall be returned to the Bidder. »

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

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§ 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. Unless otherwise prohibited by law, 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 Unless otherwise prohibited by law, 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 Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 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.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

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. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

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§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

« »

§ 7.2 Time of Delivery and Form of Bonds
§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 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, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

« »

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

« »

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

« »

.4 Building Information Modeling Exhibit, if completed:

« »

.5 Drawings

Number	Title	Date
See LS3P Hampton High School – Phase 2: 1201-217190	Construction Documents	10.31.2025

.6 Specifications

Section	Title	Date	Pages
See LS3P Hampton High School – Phase 2: 1201-217190	Construction Documents	10.31.2025	

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.7 Addenda:

Number	Date	Pages

.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.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

« »

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DOCUMENT 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

1.1 BID INFORMATION

A. Bidder: _____.

B. Project Location: Hampton County High School, 1682 Savannah Highway, Hampton, SC 29924

C. Owner: Hampton County School District, 372 Pine Street East, Varnville, SC 29944

D. Architect: LS3P ASSOCIATES LTD.

E. Architect Project Number: 1201-217190

1.2 CERTIFICATIONS AND BASE BID

A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by LS3P ASSOCIATES LTD. and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including, necessary to complete the construction of the above-named Project, in accordance with the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

1. _____ Dollars ($_____).
2. The above amount may be modified by amounts indicated by the Bidder under the "Unit Prices" Article and the "Alternates" Article below.
3. .

1.3 UNIT PRICES

A. The undersigned Bidder proposes the amounts below be added to or deducted from the Contract Sum on performance and measurement of the individual items of the Work, as described in Section 012200 "Unit Prices.

B. If the Unit Price does not affect the Work of this Contract, the Bidder to indicate "NOT APPLICABLE."

C. Unit Price No. 1: Base Bid Quantity: **1,200 CY**. The Contractor shall include in the Base Bid this assumed quantity of removal of unsuitable materials and replacement with controlled fill in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

1. _____ dollars ($_____) per CY.

D. Unit Price No. 2: Bid Alternate #2 Quantity: **185 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #2 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

1. _____ dollars ($_____) per CY.

E. Unit Price No. 3: Bid Alternate #3 Quantity: **500 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #3 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

1. _____ dollars ($_____) per CY.

F. Unit Price No. 4: Bid Alternate #4 Quantity: **1,000 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #4 is selected; fill in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

1. _____ dollars ($_____) per CY.

G. Unit Price No. 5: Bid Alternate #6 Quantity: **2,300 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #6 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

1. _____ dollars ($_____) per CY.

1.4 ALTERNATES

A. The undersigned Bidder proposes the amount below be added to or deducted from the Base Bid if particular Alternates are accepted by Owner. Amounts listed for each Alternate include costs of related coordination, modification, or adjustment.

B. If the Alternate does not affect the Contract Sum, the Bidder to indicate "NO CHANGE."

C. If the Alternate does not affect the Work of this Contract, the Bidder to indicate "NOT APPLICABLE."

D. The Bidder is responsible for determining from the Contract Documents the effects of each Alternate on the Contract Time and the Contract Sum.

E. Owner reserves the right to accept or reject any Alternate, in any order, and to award or amend the Contract accordingly within 60 days of the Notice of Award unless otherwise indicated in the Contract Documents.

F. Acceptance or non-acceptance of any Alternates by Owner is to have no effect on the Contract Time unless the Alternate description below provides a formatted space for the adjustment of the Contract Time.

G. Alternate No. 1: Weight Room Addition:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

H. Alternate No. 2: Baseball and Softball Accessory Structures:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

I. Alternate No. 3: Tennis Courts, Bleachers, and Lights:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

J. Alternate No. 4: Track and Field Events, and Football Field:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

K. Alternate No. 5: Premanufactured Greenhouse:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

L. Alternate No. 6: Football Stadium, Concessions and Restrooms:

1. ☒ ADD ☐ DEDUCT ☐ NO CHANGE ☐ NOT APPLICABLE.
2. _____ Dollars ($_____).
3. Contract Time: Acceptance of this Alternate will add _____ calendar days to the Contract Time.

1.5 BID SECURITY

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached Bid Security, as liquidated damages for such failure as follows:

1. In the following amount constituting 5 percent of the Base Bid amount above:

   a. _____ Dollars ($_____).

~~2. In the following amount constituting _____ of the Base Bid amount above:~~

   ~~a. _____ Dollars ($_____).~~

~~3. In the following amount, as stipulated in Document 002113 "Instructions to Bidders":~~

   ~~a. _____ Dollars ($_____).~~

B. Form of Bid Security: Bidder has attached the following:

1. ☐ AIA Document A310-2010, "Bid Bond."
2. ☐ Cashier's check.
3. ☐ Certified check.

C. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cashier's check, certified check, or bid bond.

1.6 SUBCONTRACTORS AND SUPPLIERS

A. The following companies to execute subcontracts for the portions of the Work indicated:

1. Hampton County High School – Phase 2:
   _____.

   a. Site Contractor _____.
   b. Electrical _____.
   c. Plumbing _____.
   d. Mechanical _____.

1.7 TIME OF COMPLETION

A. Time of Completion:

1. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect, and to substantially complete the Work within _____ calendar days.
2. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect, and to substantially complete the Work within _____ calendar days.

1.8 ACKNOWLEDGMENT OF ADDENDA

A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated _____.
2. Addendum No. 2, dated _____.
3. Addendum No. 3, dated _____.
4. Addendum No. 4, dated _____.

1.9 BID SUPPLEMENTS

A. The following supplements are a part of this Bid Form and are attached hereto:

1. AIA A310 – Bid Bond.

1.10 CONTRACTOR'S LICENSE

A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, indicated jurisdiction, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.11 SUBMISSION OF BID

A. Respectfully submitted this _____ day of December 2025.

B. Submitted by: _____ (Name of bidding firm or corporation).

C. Authorized Signature: _____ (Handwritten signature).

D. Signed by: _____ (Type or print name).

E. Title: _____ (Owner/Partner/President/Vice President).

F. Witnessed by: _____ (Handwritten signature).

G. Attest: _____ (Handwritten signature).

H. By: _____ (Type or print name).

I. Attester Title: _____ (Corporate Secretary or Assistant Secretary).

J. Street Address: _____.

K. City, State, Zip: _____.

L. Phone: _____.

M. License No.: _____.

N. Federal ID No.: _____.

O. (Affix Corporate Seal Here)

END OF DOCUMENT 004113

DRAFT

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)

«HAMPTON COUNTY SCHOOL DISTRICT»« »
«372 PINE STREET EAST»
«VARNVILLE, SC 29944»
« »

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

« »« »
« »
« »
« »

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

«HAMPTON COUNTY HIGH SCHOOL – PHASE 2»
«1201-217190»

«HAMPTON COUNTY HIGH SCHOOL»
«1682 SAVANNAH HIGHWAY»
«HAMPTON, SC 29924»

«Scope of Work includes an athletics complex for Hampton County High School. The work is broken into a base bid and various add alternates. The base bid includes two practice fields, a field house, baseball field with dugouts and a softball field with dugouts. The alternates include a weight room addition to the field house, various supporting structures for baseball and softball, tennis courts, a prefabricated greenhouse, a competition football field, track and field events, a 3,000 seat stadium and a concession building with restrooms.»

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

«LS3P ASSOCIATES LTD.»« »
«205-1/2 KING STREET»
«CHARLESTON, SC 29401»

The Owner and Contractor agree as follows.

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

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

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

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EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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, the Owner's Invitation for Bids issued for this Project, 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.

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:
(Check one of the following boxes.)

[«X »] The date of this Agreement.

[« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 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:
(Check one of the following boxes and complete the necessary information.)

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[« »] Not later than «sixty » («60 ») calendar days from the date of commencement of the Work.

[« »] By the following date: « »

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 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.

§3.3.4 Final completion of all work shall be performed within thirty (30) calendar days from the scheduled contract time for Substantial Completion, subject to adjustments as provided in the Contract Documents.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum 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, if any, included in the Contract Sum:

Item	Price
Alternate No. 1: Weight Room Addition. Alternate No. 2: Baseball and Softball Accessory Structures. Alternate No. 3: Tennis Courts, Bleachers, and Lights (Civil & MEP). Alternate No. 4: Track and Field Events, and Football Field (Civil & MEP). Alternate No. 5: Premanufactured Greenhouse. Alternate No. 6: Football Stadium, Concessions and Restrooms.	

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
Unit Price No. 1:Base Bid Quantity: **1,200 CY**. The Contractor shall include in the Base Bid this assumed quantity of removal of unsuitable materials and replacement with controlled fill.		
Unit Price No. 2: Bid Alternate #2 Quantity: **185 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #2 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.		
Unit Price No. 3: Bid Alternate #3 Quantity: **500 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #3 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.		

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Unit Price No. 4: Bid Alternate #4 Quantity: **1,000 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #4 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.
Unit Price No. 5: Bid Alternate #6 Quantity: **2,300 CY**. The Contractor shall include this assumed quantity of removal of unsuitable materials and replacement with controlled fill if Bid Alternate #6 is selected; in accordance with Section 312000 "Earth Moving" and as indicated on Drawings.

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

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

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

~~« The Owner shall retain as liquidated damages the amount of $250 for each Calendar Day the actual construction time required to achieve substantial completion exceeds the specified or adjusted time for Substantial Completion.»~~

«Time is of the essence in all phases of the Work. It is specifically understood and agreed by and between Owner and Construction Manager that time is of the essence in the Substantial Completion of the Project and Owner shall sustain damages as a result of Construction Manager's failure, neglect or refusal to achieve Substantial Completion by the deadlines. Owner's damages are, and will continue to be, impracticable and extremely difficult to determine. The amounts stated below are the minimum value of the costs and damages caused by failure of Construction Manager to complete the Work within the allotted or agreed extended times of Substantial Completion, the sums are liquidated damages and shall not be construed as a penalty, and they may be deducted from payments due Construction Manager if the delay occurs. The Owner's damages include, but are not limited to, additional compensation for personnel, attorneys' fees, architectural fees, engineering fees, program management fees, inspection fees, storage costs, food service costs, transportation costs, utilities costs, costs of temporary facilities, loss of interest on money, and other increased costs. Failure to complete the Work within the designated or agreed extended dates of Substantial Completion shall be construed as a breach of this Agreement, and the Owner may deduct from the Final Payment made to the Construction Manager a sum equal to $250 per day for each and every additional calendar day beyond the agreed date of Substantial Completion.»

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

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect 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.

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§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the last day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the last day of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than «thirty » («30 ») days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 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 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 the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

«3.5%»

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

«N/A »

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§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

«N/A »

§ 5.1.7.3 Except as set forth in this Section 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. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

«N/A »

§ 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 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

«N/A »

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

«Zero » 0% « »

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

«N/A »
« »
« »
« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

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[« X »] Litigation in a court of competent jurisdiction in Hampton County, South Carolina.

[« »] Other *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

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.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

« None; the Owner agrees to pay verifiable costs incurred to date of termination but no termination fees. »

§ 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:
(Name, address, email address, and other information)

«Dr. Glenda Sheffield, Superintendent »
«Hampton County School District »
«372 Pine Street East »
«Varnville, SC 29944 »
«(803) 943-4576 »
«gsheffield@hcsdsc.org »

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 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 Insurance and Bonds

§ 8.5.1 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.

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

§ 8.5.3 PERFORMANCE BOND AND PAYMENT BOND

§ 8.5.3.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. The amount of each bond shall be equal to One Hundred Percent (100%) of the Contract Price.

§ 8.5.3.2
Payment and Performance Bonds must meet the same issuer financial ratings standards as would be required by the South Carolina State Engineer under the State Procurement Code.

§ 8.5.3.3
The Contractor shall deliver the required bonds to the Owner at least three days before the commencement of any Work at the Project site.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203, Building Information Modeling and Digital Data
Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203, 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.)

«N/A »

§ 8.7 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203, Building Information Modeling and Digital Data Exhibit:
(Insert the date of the building information modeling exhibit incorporated into this Agreement.)

«N/A »

.5 Drawings

Number	Title	Date
See Exhibit A.		

.6 Specifications

Section	Title	Date	Pages
See Exhibit A.			

.7 Addenda, if any:

Number	Date	Pages

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.

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

[«N/A »] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.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.)

«Performance Bonds for 100% of Contract Amount
Payment Bonds for 100% of Contract Amount« »

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
«Dr. Glenda Sheffield, Superintendent »« »	« »« »
(Printed name and title)	*(Printed name and title)*

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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. This Section includes the following:

1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Use of premises.
4. Owner's safety and security.
5. Owner's occupancy requirements
6. Owner-furnished products.
7. Specification formats and conventions.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification.

1. Project: Hampton County School District, Hampton County High School, Phase 2; LS3P Project No. 1201-217190.
2. Location: ~~1682~~ 1585 Savannah Highway, Hampton, SC 29924.
3. Owner: Hampton County School District, 372 Pine Street East, Varnville, SC 29944.

a. Owner’s Representative: Dr. Glenda Sheffield, Superintendent; (803) 943-4576; gsheffield@hcsdsc.org.

B. Scope of Work:

1. Scope of Work includes an athletics complex for Hampton County High School. The work is broken into a base bid and various add alternates. The base bid includes two practice fields, a field house, baseball field with dugouts and a softball field with dugouts. The alternates include a weight room addition to the field house, various supporting structures for baseball and softball, tennis courts, a prefabricated greenhouse, a

competition football field, track and field events, a 3,000 seat stadium and a concession building with restrooms. .

C. Architect Identification: The Contract Documents were prepared for Project by LS3P ASSOCIATES LTD., 205-1/2 King Street, Charleston, SC 29401.

1. Architect's Representatives: Nikos Katsibas, AIA, Architect, Associate Principal; (843) 577-4444; nikoskatsibas@ls3p.com.

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

1. Civil Engineer and Landscape Architect: ADC Engineering, Inc., 1226 Yeamans Hall Road, Hanahan, SC 29410; (843) 566-0161.

a. Civil Representatives: Ryne W. Hardwick, P.E.; (843) 735-5146; ryneh@adcengineering.com.
b. Landscape Representative: W. Warren Pruitt, Jr., ASLA: (843) 735-5144; warrenp@adcengineering.com

2. Structural Engineer: ADC Engineering, Inc., 7436 Broad River Road, Irmo, SC 29063; (803) 999-1484.

a. Structural Representatives:

1) Kyle Moody, P.E.; (803) 730-9857; kylem@adcengineering.com.
2) William "Bill" Beck, P.E.; (803) 732-7080; billb@adcengineering.com

3. Mechanical, Electrical, Plumbing, Fire Protection Engineers: Optima Engineering. 1927 Tryon Street, Suite 300, Charlotte, NC 29203; (704) 338-1292.

a. MEP-FP Engineer Representative: Thomas L. Hogue, thomas@optimaengineering.com.

4. Food Service Consultant: Camacho Associates, Inc., 3103 Medlock Bridge Road, Norcross, GA 30071; (800) 849-0520.

a. Food Service Representatives:

1) James Camacho, jamesc@camachousa.com
2) Brett Daniel, brettd@camachousa.com; 770.582.1144; (C) 770.331.7797.

1.4 TYPE OF CONTRACT

A. Project will be constructed under single prime contract.

1.5 USE OF PREMISES

A. General: Contractor shall have limited 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.

B. Deliveries: Provide representative to receive all materials and offload at the job site. The Owner will refuse all deliveries to other locations.

C. Safety and Security: Comply with Owner’s requirements related to security and fire drills and alerts.

D. Burning/Welding Operations: Comply with Owner’s requirements related to Burning and Welding permits. Coordinate turning off of fire/smoke detection systems in affected areas. Contractor shall be responsible for Fire Department response fees related to construction operations.

1.6 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during normal working hours Monday through Saturday, and other times as authorized by Owner.

B. Employee Behavior:

1. Smoking and other tobacco use is not permitted on the premises.

C. Smoking: No smoking is allowed.

D. Burning: Not permitted.

E. Employee Identification: The Contractor will provide identification tags or shirts identifying the name of the contractor/subcontractor. Personnel are required to use identification tags or wear a shirt identifying the name of the contractor/subcontractor at all times.

F. Employee Screening: Contractor and subcontractors certify that a "drug-free workplace" will be provided as that term is defined in Section 44-107-30 of the South Carolina Code of Laws by complying with the requirements set forth in Title 44, Chapter 107.

1.7 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFCI) PRODUCTS

A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:

1. Provide to Contractor Owner-reviewed Product Data, Shop Drawings, and Samples.
2. Provide for delivery of Owner-furnished products to Project site.
3. Upon delivery, inspect, with Contractor present, delivered items.

a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.

4. Obtain manufacturer's inspections, service, and warranties.
5. Inform Contractor of earliest available delivery date for Owner-furnished products.

B. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
2. Review Owner-reviewed Product Data, Shop Drawings, and Samples, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Make building services connections for Owner-furnished products.
5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
6. Repair or replace Owner-furnished products damaged following receipt.

C. Owner-Furnished/Contractor-Installed (OFCI) Products:

1. As indicated on Drawings.

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

A. The Owner will furnish and install products indicated.

B. Contractor will coordinate power, services, and other aspects required for installation.

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

1. As indicated on Drawings.

1.9 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the CSI/CSC's "MasterFormat 2004" numbering system.

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

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor.

Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

B. Related Requiements:

1. Section 012200 “Unit Prices” for accepted alternates requiring Removal of Unsuitable Materials and Replacement with Controlled Fill (per CY).

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other Work of the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Weight Room Addition.

1. Base Bid: Weight Room Addition is not included in Base Bid.
2. Add Alternate No. 1: Provide Weight Room Addition as indicated on Drawings and specified in Project Manual.

B. Alternate No. 2: Baseball and Softball Accessory Structures.

1. Base Bid: Baseball and Softball Accessory structures are not included in Base Bid as indicated on Drawings and specified in Project Manual.
2. Add Alternate No. 2: Provide Add Alternate Baseball and Softball Accessory Structures as indicated on Drawings and specified in Project Manual.

C. Alternate No. 3: Tennis Courts, Bleachers, and Lights.

1. Base Bid: Tennis Courts, Bleachers, and Lights are not included in Base Bid.
2. Add Alternate No. 3: Provide Tennis Courts, Bleachers, and Lights as indicated on Drawings and specified in Project Manual.

D. Alternate No. 4: Track and Field Events, and Football Field.

1. Base Bid: Track and Field Events, and Football Field are not included in Base Bid.
2. Add Alternate No. 4: Provide Track and Field Events, and Football Field as indicated on Drawings and specified in Project Manual.

E. Alternate No. 5: Premanufactured Greenhouse.

1. Base Bid: Premanufactured Greenhouse is not included in Base Bid.
2. Add Alternate No. 5: Provide Premanufactured Greenhouse as indicated on Drawings and specified in Section 133413 “Greenhouses.”

F. Alternate No. 6: Football Stadium, Concessions and Restrooms.

1. Base Bid: Football Stadium, Concessions and Restrooms are not included in Base Bid.
2. Add Alternate No. 6: Provide Football Stadium, Concessions and Restrooms as indicated on Drawings and specified in Project Manual.

END OF SECTION 012300

DIGITAL DATA LETTER OF AGREEMENT

An Agreement between LS3P ASSOCIATES LTD. (the "Architect") and ___ (the "Licensee," either Original or Third Party, as the case may be) for Licensing of Digital Data

Architect: LS3P ASSOCIATES LTD.
205-1/2 King Street
Charleston, SC 29401
Contacts: Nikos Katsibas, AIA,
nikoskatsibas@ls3p.com.

Licensee:
Original __
3rd Party __

Project No.: 1201-217190
Project Name: Hampton County School District, Hampton High School Phase 2
Location: ~~1682~~ 1585 Savannah Highway, Hampton, SC 29924
Date: _____

The Architect will provide the following Digital Data, dated as of the particular transmission, to the Licensee **for information purposes only:**

Sheet XXX (.dwg format)
Sheet XXX (.dwg format)
Sheet XXX (.dwg format)
Sheet XXX (.dwg format)

Revit MODEL (Revit 20XX)

Digital Data was prepared using the following:

Software: Revit (.rvt) **Version:**

Digital Data to be delivered via the following media: Newforma Website posting

Licensee shall pay the Architect a service fee of $0.00 and other good and valuable consideration.

TERMS AND CONDITIONS

1. The Architect and its consultants make no representation as to the compatibility of the Digital Data with any hardware or software. The Licensee shall notify the Architect within five (5) business days of any problems associated with accessing and/or using the Digital Data.

2. The Licensee acknowledges and agrees that the Digital Data may change or degrade during the transmission process. The Licensee acknowledges and agrees that the Architect and its consultants may remove all indications of ownership from the Digital Data prior to transmission.

3. All Digital Data shall be considered the property of the Architect and/or its consultants and shall not be used for other Projects, for additions to this Project without the prior written permission of the Architect and/or its consultants. Digital Data shall not be re-transmitted by the Original Licensee to a Third-Party Licensee without prior

execution of an agreement identical to this Agreement between the Architect, the Original Licensee, and the Third-Party Licensee. Under no circumstances shall the transmission of the Digital Data be considered a sale of goods or a sale of copyrights.

4. **THE ARCHITECT AND THE ARCHITECT'S CONSULTANTS HEREBY EXPRESSLY DISCLAIM ANY AND ALL WARRANTIES, BOTH EXPRESS AND IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AS WELL AS ANY WARRANTY OF ACCURACY, COMPLETENESS, AND/OR PERMANENCE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.** Addenda information and/or revisions made to the most current Digital Data after any date of transmission have not been incorporated into the transmitted Digital Data. In the event of a conflict between the Architect's printed instruments of service (2D Documents) whether sealed or unsealed) and the Digital Data (3D Model), the printed instruments of service shall govern. The Licensee acknowledges and agrees that the duty to determine the existence of any and all conflicts between the Digital Data and any other information upon which the Licensee relies rests solely upon the Licensee. The Digital Data shall not be considered Contract Documents or Construction Documents as defined by any General Conditions of Contract for Construction. The Digital Data is being provided for information only and on a strictly "AS IS" basis.

5. Licensee agree the extent of its reliance on any Digital Data shall be limited to the uses identified in this Agreement.

6. Licensee may use and rely upon the Digital Data only for programming, site analysis, design review, 3D coordination of structural, mechanical, plumbing, and electrical systems, and preconstruction activities.

7. The Level of Development (LOD) describes the minimum dimensional, spatial, quantitative, qualitative, and other data included in the Digital Data to support the uses and reliance included in this Agreement. The LOD of the Digital Data transmitted is LOD 200. LOD 200 is defined as model and model elements that are generically and graphically represented within the Digital Data with approximate quantity of major components, size, shape, location, and orientation.

8. If Licensee discovers or becomes aware of any discrepancies, inconsistencies, errors, or omissions in any Digital Data transmitted, they shall promptly report the discrepancy, inconsistency, error, or omission in writing to the Architect. Licensee shall not use any discrepancy, inconsistency, error, or omission in the Digital Data as the basis of a claim.

9. Any reliance on the Digital Data not in accordance with this Agreement shall be at the sole risk of the Licensee.

10. The use and/or provision of the Digital Data prepared by the Architect and/or its consultants shall not in any way reduce or obviate the Licensee's duty to check and coordinate dimensions, details, and quantities of materials as required to facilitate construction of the Project in a complete and quality manner consistent with the applicable standards of care. Confirmation of existing conditions is the sole responsibility of the Licensee.

11. The Licensee agrees to the extent permitted by applicable law, to indemnify, hold harmless, and release the Architect and/or its consultants, their officers, shareholders, employees, and sub-consultants from any and all injuries, claims, demands, expenses, suits, liabilities, losses, damages, costs, disputes, other matters in question, third party claims, pass-through claims, subrogated claims, and/or claim expenses related to the Digital Data, including but not limited to, attorneys' fees, expert witness fees, and court costs arising out of or in any way related to or connected with any negligent act and/or omission in the generation, provision, and/or use of the Digital Data by the Licensee and/or any of its subcontractors, suppliers, and/or consultants and waive any and all rights to such claims and causes of action.

12. The Licensee waives damages against the Architect for any and all injuries, claims, losses, expenses, damages, disputes, other matters in question, and/or claim expenses arising out of or relating to this Agreement and/or generation, provision, and/or use of the Digital Data, including, but not limited to, consequential damages and reasonable attorneys' fees and defense costs.

13. The Architect's and/or the Architect's consultants' liability to the Licensee and/or any of its subcontractors, suppliers, and/or consultants for any and all injuries, claims, losses, expenses, damages, disputes, other matters in question, third party claims, pass-through claims, subrogated claims, and/or claim expenses arising out of or relating to this Agreement and/or the Digital Data, including, but not limited to, reasonable attorneys' fees and defense costs, regardless of the nature of the claim or damage, shall not exceed, either individually or in the aggregate, the total amount of $1,000.00. Such causes include, but are not limited to, the Architect's and/or the Architect's consultants' negligence, errors, omissions, strict liability, breach of contract, and/or breach of warranty.

14. To the best of the Architect's knowledge, information and belief, there are no licensing or copyright fees due to others based on the transmission of the Digital Data, but to the extent that such unknown fees do exist, the Licensee agrees to pay the required fees and hold the Architect and/or its consultants harmless from any associated costs or penalties.

15. Upon execution of this Agreement, the Architect grants to the Licensee a non-exclusive, non-transferable (except as set forth herein), limited license to use the Digital Data solely and exclusively for informational purposes on the identified Project only, provided that the Licensee substantially performs its obligations under this Agreement.

16. Any purchase order number provided by the Licensee is for the Licensee's accounting purposes only. The Licensee acknowledges and agrees that purchase order terms and conditions are null, void, and inapplicable to this Agreement.

17. This Agreement constitutes the entire agreement between the parties relative to the Digital Data and shall be governed by the laws of the State of South Carolina without regard to principles of conflicts of law.

AUTHORIZED ACCEPTANCE

by Architect:
LS3P ASSOCIATES LTD.

_____
Signature

_____
Print Name and Title

_____
Date

by Original Licensee:

_____
Signature

_____
Print Name and Title

_____
Date

by Third Party Licensee:
_____

_____
Signature

_____
Print Name and Title

_____
Date

WE SO CONSENT:

by Owner:

_____

_____
Signature

_____
Print Name and Title

_____
Date

SECTION 055100 – EXTERIOR ALUMINUM STAIRS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Furnishing and installing prefabricated modular aluminum stair systems.

1.2 SUBMITTALS

A. Product literature with bid.

B. Warranty information with bid.

C. Shop drawings upon receipt of purchase order.

D. Engineering: Provide sealed professional engineered drawings upon request.

1.3 QUALITY ASSURANCE

A. Stair and landing components shall be universal so that a stair system can be assembled for left, right, or perpendicular access.

B. Design of the aluminum members shall conform to the current edition of the Aluminum Association Specifications and Guidelines for Aluminum Structures.

C. Aluminum welding shall be in accordance with the ANSI/AWS D1.2- 97 GMAW process shall be performed by experienced operators.

D. All exposed surfaces shall be smooth and free of sharp or jagged edges.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification.

1. Keep aluminum members off ground and spaced by using pallets, dunnage, or other supports and spacers.
2. Protect aluminum members and packaged materials from corrosion and deterioration.
3. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures.

a. Repair or replace damaged materials or structures as directed.

1.5 WARRANTY

A. Manufacturer shall warrant its products to be free from defects in material and workmanship for a period of one (1) year beginning at date of delivery of product. This warranty excludes any defects resulting from abnormal use in installation or service, accidental or intentional damage or any occurrences beyond the manufacturer's control.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturers: Subject to compliance with requirements, available manufacturers include, but are not limited, to the following:

1. Erectastep; SixAxis LLC Companies; 219 Safety Avenue, Andrews, SC 29510; (844) 948-1156.
2. Hydro Extrusion USA LLC (REDD Team), 125 Superior Drive Delhi, LA 71232. | Telephone Toll Free: 1-800-779-5509. Fax 1-866-840-4566 | Website: http://www.reddteam.com | E-mail: del_reddteam.us@hydro.com. (Basis-of-Design)
3. Upside Innovations; 8800Global Way, #100, West Chester, OH 45069; (513) 712-8227; solutions@upsideinnovations.com

2.2 SYSTEM CONSTRUCTION

A. STAIRWAYS

1. Engineering:

a. Stair treads and stringers shall be designed for a uniform live load of 100 pounds per square foot and a concentrated vertical load of 300 pounds over an area of 4 square inches.

2. Materials:

a. Stair treads, stringers, and risers shall be constructed using 6000 series aluminum alloy with 6061-T6 for primary structural components; included for its corrosion-resistance, lightweight, and durability properties.~~.~~

3. Design:

a. Stair treads shall be prefabricated. ~~in typical 4-foot 5-inch width~~. All treads have ADA compliant nosing.

~~a.~~1) Stair Tread Width: As indicated on Drawings.

b. Series 7-inch stairways shall be prefabricated to match a threshold height of 48 inches unless indicated differently.

B. LANDINGS

1. Engineering

a. Landings shall be designed for a uniform live load of 100 pounds per square foot and a concentrated vertical load of 300 pounds distributed uniformly over an area of 1 square foot.

2. Materials

a. Landings shall be constructed using 6000 series aluminum alloy with 6061-T6 for primary structural components; included for its corrosion-resistance, lightweight, and durability properties.

3. Design

a. Landings shall be prefabricated in typical 5 foot-1 1/2-inch by 5 foot-1 1/2-inch sections.
b. Landings will be designed for variable heights.

C. LEGS

1. Engineering

a. The legs shall be designed to support the stair and landing sections. (See Uniform Live Load Specification 2.2.A.1.).

2. Materials

a. Legs shall be constructed using 6061-T6 aluminum alloy.
b. All bolt hardware shall be stainless steel grade 304.

3. Design

a. The legs shall telescope to allow for various height adjustments.
b. All legs shall be thru bolted using stainless steel bolts grade 304.
c. All legs shall have 1/4-inch by 5-inch by 8-inch pads.

D. LANDING RAILS AND STAIR RAILS

1. Engineering

a. Handrails shall be designed to resist a concentrated load of 200 pounds applied at any point and in any direction at the top of the rail.
b. Handrails shall be designed to resist a load of 50 pounds per linear foot applied in any direction at the top of the rail.

2. Materials

a. All landing rails and stair rails shall be aluminum construction alloy 6061-T6 & 6063-T5.

3. Design

a. Stair rail gripping surface shall be smooth and continuous.
b. Stair handrail shall be 34 inches high from the nose of the tread to top of the rail (measured perpendicularly from the tread nose).
c. Stair top rail shall be 1 1/4-inch Schedule 40 aluminum pipe with a barrier system of 4-inch on center spaced vertical pickets.
d. Landing rails shall form a 42-inch-high protective barrier such that a 4-inch sphere cannot pass through any opening in the landing rail.

E. DECKING

1. Decking shall be slip-resistant perforated extruded aluminum self-mating deck.

2.3 FINISHING

A. ~~Landing rails and stair rails shall be Mill finish~~All Aluminum Components: Manufacturer's standard; clear anodized aluminum finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify elevations of floors, bearing surfaces and locations of bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF METAL STAIRS

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction.

1. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

C. Install metal stairs by welding stair framing to weld plates cast into concrete unless otherwise indicated.

1. Grouted Baseplates: Clean concrete bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces.

    a. Clean bottom surface of baseplates.
    b. Set aluminum stair baseplates on wedges, shims, or leveling nuts.
    c. After stairs have been positioned and aligned, tighten anchor bolts.
    d. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
    e. Promptly pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

        1) Neatly finish exposed surfaces; protect grout and allow to cure.
        2) Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or similar construction.

E. Fit exposed connections accurately together to form hairline joints.

1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.

END OF SECTION 055100

SECTION 072119 - FOAMED-IN-PLACE INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Closed-cell spray polyurethane foam insulation.
2. Accessories.

~~B. Related Requirements:~~

~~1. Section 072100 "Thermal Insulation" for foam-plastic board insulation.~~

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Product Test Reports: For each product, for tests performed by qualified testing agency.
2. Research Reports: For spray-applied polyurethane foam-plastic insulation, from ICC-ES showing compliance with .

B. Field Quality-Control Submittals:

1. Field quality-control reports.

C. Qualification Statements: For Installer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

PART 2 - PRODUCTS

2.1 CLOSED-CELL SPRAY POLYURETHANE FOAM INSULATION

A. Closed-Cell Spray Polyurethane Foam: ASTM C1029, Type II, minimum density of 1.5 lb/cu. ft. and minimum aged R-value at 1-inch thickness of 6.2 deg F x h x sq. ft./Btu at 75 deg F.

1. Basis of Design Product: Subject to compliance with requirements, provide basis-of-design indicated, or comparable, Architect approved product.

a. Carlisle Spray Foam Insulation. (Basis-of-Design)

1) Product: SealTite Pro Closed Cell Foam.

2. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Flame-Spread Index: 25 or less.
b. Smoke-Developed Index: 450 or less.

3. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved UL assembly.

2.2 ACCESSORIES

A. Primer: Material recommended in writing by insulation manufacturer where required for adhesion of insulation to substrates.

~~B. Intumescent Thermal Barrier: Material barrier intended to prevent flame-source access to foam and delay temperature rise of foam during a fire event.~~

~~1. Gypsum Wallboard: 0.5-inch minimum thickness.~~
~~2. Materials tested in accordance with and complying with acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.~~
~~3. Thermal Barrier Coating: Fire-protective intumescent coating formulated for application over polyurethane foam plastics, compatible with insulation, and passes NFPA 275 testing as part of an approved assembly.~~

~~a. Provide thermal barrier coating compatible with insulation, and as recommended in writing by foamed in place insulation manufacturer.~~

~~1) Basis-of-Design Product: Subject to compliance with requirements, provide basis-of-design indicated, or comparable, Architect approved product.~~

~~a) TPR^2 Corporation; FireShell F10E.~~

~~4. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.~~

~~a. Flame-Spread Index: 25 or less.~~
~~b. Smoke-Developed Index: 50 or less.~~

~~5. Topcoat: Coating as recommended in writing by intumescent thermal barrier manufacturer as compatible with substrate materials, and in thickness as recommended in writing by intumescent thermal barrier manufacturer.~~

~~C. Ignition Barrier: Material providing a 15-minute minimum fire-ignition barrier.~~

~~1. Mineral-Fiber Insulation: 1.5-inch minimum thickness.~~
~~2. Wood Structural Panel, Particleboard or Hardboard: 0.25-inch minimum thickness.~~
~~3. Gypsum Wallboard: 0.325-inch minimum thickness.~~
~~4. Corrosion-Resistant Steel: 0.016-inch base metal thickness.~~
~~5. Cellulose Insulation: 1.5-inch minimum thickness, self-supported spray-applied; for attic spaces only.~~
~~6. Ignition Barrier Coating: Fire-protective coating formulated for application over polyurethane foam plastics, compatible with insulation, and in compliance with ICC-ES AC377, Appendix X.~~

~~a. Provide ignition barrier coating compatible with insulation, and as recommended in writing by foamed in place insulation manufacturer.~~

~~7. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.~~

~~a. Flame-Spread Index: 25 or less.~~
~~b. Smoke-Developed Index: 50 or less.~~

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify that substrates are clean, dry, and free of substances that are harmful to insulation.

B. Priming: Prime substrates where recommended by insulation manufacturer. Apply primer to comply with insulation manufacturer's written instructions. Confine primers to areas to be insulated; do not allow spillage or migration onto adjoining surfaces.

3.2 INSTALLATION

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Spray insulation to envelop entire area to be insulated and fill voids.

C. Apply in multiple passes to not exceed maximum thicknesses recommended by manufacturer. Do not spray into rising foam.

D. Framed Construction: Install into cavities formed by framing members to achieve thickness indicated on Drawings.

E. Cavity Walls: Install into cavities to fully fill void.

F. Miscellaneous Voids: Apply according to manufacturer's written instructions.

~~G. Install thermal and ignition barrier material as recommended in writing by insulation manufacturer and in compliance with UL assembly requirements.~~

~~1. Do not cover insulation prior to any required spray foam insulation inspections.~~

~~H. Apply barrier coatings in accordance with manufacturer's written instructions and to comply with requirements for listing and labeling for fire propagation characteristics and surface-burning characteristics specified.~~

~~1. Use equipment and techniques best suited for substrate and type of material applied as recommended by coating manufacturer.~~
~~2. Apply coatings to prepared surfaces as soon as practical after preparation and before subsequent surface soiling or deterioration.~~
~~3. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Produce sharp lines and color breaks.~~

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect spray foam insulation installation, including accessories. Report results in writing.

3.4 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes.

END OF SECTION 072119

SECTION 096566 - RESILIENT ATHLETIC FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Rubber sheet flooring.

B. Related Requirements:

1. Section 096513 "Resilient Base and Accessories" for wall base and accessories installed with resilient athletic flooring.

1.3 COORDINATION

A. Coordinate layout and installation of flooring with floor inserts for gymnasium equipment.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show installation details and locations of the following:

1. Border tiles.
2. Floor patterns.
3. ~~Layout, colors, widths, and dimensions of game lines and markers.~~
4. ~~4.~~3. Locations of floor inserts for athletic equipment installed through flooring.
5. ~~5.~~4. Seam locations for sheet flooring.
6. ~~Game-Line and Marker Paint: Include charts showing available colors and glosses.~~

~~C. Samples for Verification: For each type, color, and pattern of flooring specified, 6-inch- square in size and of same thickness and material indicated for the Work.~~

1. ~~Game-Line- and Marker-Paint Samples: Include Sample sets showing game-line- and marker-paint colors applied to flooring.~~

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For resilient athletic flooring to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sheet Flooring: Furnish full-width rolls of not less than 10 linear feet for each 500 linear feet or fraction thereof, of each type, color, and pattern of flooring installed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storing.

B. Store materials to prevent deterioration.

1. Store tiles on flat surfaces.
2. Store rolls upright.

1.8 FIELD CONDITIONS

A. Adhesively Applied Products:

1. After postinstallation period, maintain temperatures within range recommended in writing by manufacturer, but not less than 55 deg F or more than 95 deg F.
2. Close spaces to traffic during flooring installation.
3. Close spaces to traffic for 48 hours after flooring installation unless manufacturer recommends longer period in writing.

B. Install flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RUBBER SHEET FLOORING **(RAF-1, RAF-2)**

A. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated on Room Finish Legend on Drawings, or comparable, Architect approved product by one of the following:

1. ECORE Athletic; Ecore International. (Basis-of-Design)

a. Product: Performance Motivate Rubber Resilient Athletic Flooring.

2. Aacer Flooring, LLC.
3. Bounce 2 - Ecore Flooring.
4. Dinoflex Group LP.
5. Dynamic Sports Construction, Inc.
6. Gerflor USA.
7. Mondo America Inc.
8. Signature Sports Flooring.
9. Tarkett Sports Indoor.

B. Description: Rubber athletic flooring provided as rolled goods for adhered installation.

C. Material: Rubber wear layer and rubber shock-absorbent layer, vulcanized together.

D. Traffic-Surface Texture: Smooth.

E. Roll Size: Not less than 48 inches wide by longest length that is practical to minimize splicing during installation.

F. Thickness: 7.5 mm (0.295 inch.)

G. Color and Pattern: As indicated on Room Finish Legend on Drawings.

2.2 ACCESSORIES

A. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by flooring manufacturer.

B. Adhesives: Water-resistant type recommended in writing by manufacturer for substrate and conditions indicated.

~~C. Game Line and Marker Paint: Complete system including primer, if any, compatible with flooring and recommended in writing by flooring and paint manufacturers for use indicated.~~

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, 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.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of flooring.

B. Concrete Substrates: Prepare according to ASTM F710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Alkalinity Testing: Perform pH testing according to ASTM F710. Proceed with installation only if pH readings are not less than 7.0 and not greater than 8.5.
3. Moisture Testing: Perform tests so that each test area does not exceed 500 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended in writing by manufacturer. Do not use solvents.

D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

E. Move flooring and installation materials into spaces where they will be installed at least 48 hours in advance of installation unless manufacturer recommends a longer period in writing.

1. Do not install flooring until it is the same temperature as space where it is to be installed.

F. Sweep and vacuum clean substrates to be covered by flooring immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 FLOORING INSTALLATION, GENERAL

A. Comply with manufacturer's written installation instructions.

B. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces, equipment anchors, floor outlets, and other interruptions of floor surface.

C. Extend flooring into toe spaces, door reveals, closets, and similar openings unless otherwise indicated.

D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating subfloor markings on flooring. Use nonpermanent, nonstaining marking device.

3.4 SHEET FLOORING INSTALLATION

A. Unroll sheet flooring and allow it to stabilize before cutting and fitting.

B. Lay out sheet flooring as follows:

1. Maintain uniformity of flooring direction.
2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in flooring substrates.
3. Match edges of flooring for color shading at seams.
4. Locate seams according to approved Shop Drawings.

C. Adhere products to substrates using a full spread of adhesive applied to substrate to comply with adhesive and flooring manufacturers' written instructions, including those for trowel notching, adhesive mixing, and adhesive open and working times.

1. Provide completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.5 FIELD-APPLIED FINISHES

~~A. Apply finish after game line and marker paint is fully cured.~~

~~B.~~A. Apply finish according to manufacturer's written instructions to produce a sealed surface that is ready for use.

~~C.~~B. Do not cover flooring after finishing until finish reaches full cure.

3.6 CLEANING AND PROTECTION

A. Perform the following operations immediately after completing flooring installation:

1. Remove adhesive and other blemishes from flooring surfaces.
2. Sweep and vacuum flooring thoroughly.
3. Damp-mop flooring to remove marks and soil after time period recommended in writing by manufacturer.

B. Protect flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

1. Do not move heavy and sharp objects directly over flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096566

SECTION 105113 - METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

~~1. Welded athletic lockers.~~
1. Knocked-down athletic lockers.
2. Locker benches.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.

B. Shop Drawings: For metal lockers.

1. Include plans, elevations, sections, and attachment details.
2. Show locker trim and accessories.
3. Include locker identification system and numbering sequence.

C. Samples: For each color specified, in manufacturer's standard size.

D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available.

E. Samples for Verification: For the following products, in manufacturer's standard size:

1. Lockers and equipment.
2. Locker benches.

F. Product Schedule: For lockers. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

1.6 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. The following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than five units:

a. Locks.
b. Blank identification plates.
c. Hooks.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation.

B. Deliver master and control keys and combination control charts to Owner by registered mail or overnight package service.

C. FIELD CONDITIONS

D. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.

1.8 COORDINATION

A. Coordinate sizes and locations of bases for metal lockers.

B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures.
b. Faulty operation of latches and other door hardware.

2. Damage from deliberate destruction and vandalism is excluded.
3. Warranty Period for Knocked-Down Metal Lockers: Two years from date of Substantial Completion.
4. ~~Warranty Period for Welded Metal Lockers: 10 years from date of Substantial Completion.~~

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain metal lockers, locker benches, and accessories from single source from single locker manufacturer.

1. Obtain locks from single lock manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: For lockers and locker benches indicated to be accessible, comply with applicable provisions in the DOJ's "2010 ADA Standards for Accessible Design," the ABA standards of the Federal agency having jurisdiction and ICC A117.1.

B. MANUFACTURERS **(LKM-1)**

1. Basis-of-Design Products: Subject to compliance with requirements, provide basis-of-design indicated, or comparable, Architect approved product by one of the following:

a. Penco Products, Inc. (Basis-of-Design)
b. List Industries, Inc.
c. Lyon, LLC.
d. Republic Storage System, LLC.
e. ASI Storage Solutions, an AASI Group Company.

2.3 ~~WELDED~~ KNOCKED-DOWN ATHLETIC LOCKERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide basis-of-design products indicated, or comparable, Architect approved product by one of the following:

1. Penco Products, Inc. (Basis-of-Design)

a. Single Tier Locker, 18 by 18 inches.
b. Double Tier Locker, 12 by 12 inches.
c. Football Stadium Locker; 24 by 24 by 72 inches.

B. Perforated Doors: One piece; fabricated from 0.075-inch nominal-thickness steel sheet with manufacturer's standard diamond perforations; formed into channel shape with double bend at vertical edges and with right-angle single bend at horizontal edges and latch point (bottom) and right-angle single bend at remaining edges for box lockers.

1. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors more than 15 inches wide; welded to inner face of doors.

C. Body: ~~Assembled by welding body components together~~ Assembled by riveting or bolting body components together. Fabricate from unperforated steel sheet with thicknesses as follows:

1. Tops and Bottoms: 0.060-inch nominal thickness, with single bend at edges.
2. Backs: 0.048-inch nominal thickness.
3. Shelves: 0.060-inch nominal thickness, with double bend at front and single bend at sides and back.

D. Perforated Sides: Fabricated from 0.060-inch nominal-thickness steel sheet with manufacturer's standard diamond perforations.

~~E. Expanded-Metal Sides: Fabricated from 0.090-inch nominal-thickness expanded metal; welded to 0.105-inch nominal-thickness steel angles or 0.060-inch nominal-thickness steel channel frames.~~

~~F.~~E. Frames: Channel formed; fabricated from 0.060-inch nominal-thickness steel sheet or 0.097-inch nominal-thickness steel angles; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.

1. Cross Frames for Double-Tier Lockers: Channel formed and fabricated from same material as main frames; welded to vertical main frames.

~~G.~~F. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees.

1. Hinges: Manufacturer's standard, steel, continuous or knuckle type.

~~H.~~G. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recessed so locking device does not protrude beyond door face; pry and vandal resistant.

1. Single-Point Latching: Nonmoving latch hook designed to engage bolt of built-in combination or cylinder lock.

a. Latch Hook: Equip each door with one latch hook, fabricated from 0.120-inch nominal-thickness steel sheet; welded midway up full-height door strike; with resilient silencer.

H. Locks: For lock type, refer to Drawings.

1. Built-in combination locks for team lockers.

~~I.~~2. User locks such as padlocks for coaches' lockers.

~~J.~~I. Identification Plates: Manufacturer's standard, etched, embossed, or stamped aluminum plates, with numbers and letters at least 3/8 inch high.

~~K.~~J. Hooks: Manufacturer's standard ball-pointed, aluminum or steel; zinc plated.

~~L.~~K. Coat Rods: 1-inch- diameter steel, chrome finished.

~~M.~~L. Continuous Zee Base: 4 inches high; fabricated from 0.075-inch nominal-thickness steel sheet.

~~N.~~M. Continuous Sloping Tops: Fabricated from 0.048-inch nominal-thickness steel sheet, with a pitch of approximately 20 degrees.

1. Closures: Hipped-end type.

~~O.~~N. Recess Trim: Fabricated from 0.048-inch nominal-thickness steel sheet.

~~P.~~O. Filler Panels: Fabricated from 0.048-inch nominal-thickness steel sheet.

~~Q.~~P. Boxed End Panels: Fabricated from 0.060-inch nominal-thickness steel sheet.

~~R.~~Q. Finished End Panels: Fabricated from 0.024-inch nominal-thickness steel sheet to cover unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

~~S.~~R. Materials:

1. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B, suitable for exposed applications.

~~T.~~S. Finish: Baked enamel or powder coat.

1. Color: As selected by Architect from manufacturer's full range.

2.4 ACCESSIBLE ~~WELDED~~ KNOCKED-DOWN ATHLETIC LOCKERS

A. Provide accessible lockers with requirements of shelf at 15 inches complying with Article 2.2, "Performance Requirements."

1. Penco Products, Inc. (Basis-of-Design)

B. Materials and Finishes: Provide the same materials and finishes as specified in Article 2.3, "~~Welded~~ Knocked-Down Athletic Lockers."

2.5 LOCKS

A. Built-in Combination Lock: Key-controlled, three-number dialing combination locks; capable of at least five combination changes made automatically with a control key.

1. Bolt Operation: Manually locking deadbolt.

B. Provide accessible door locks complying with Article 2.2, “Performance Requirements.”

~~B.~~C. User Provided Lock: Standard combination or keyed padlock.

2.6 FOOTBALL LOCKERS

A. Basis of Design: ~~“Superior Series All Star Sport Locker” by List Industries.~~Penco; “Heavy Duty Knocked Down Stadium Fully Framed Open Front Lockers.”

B. Size: 24 inches (Width) by 24~~22~~ inches (Depth) by 72 inches (Height).

C. Body Construction All MIG welded construction.

1. Frame: 16 gauge Hollow-T tubular sections running top-to-bottom at all 4 corners of each locker column. 16 gauge double channel run front to back at both the top and bottom of each locker side.
2. Vertical Side Panels: 13 gauge cold rolled steel 1/2’’ flattened expanded metal framed by Hollow-T tubular framing system.
3. Locker Base: 14 gauge cold rolled steel channel running full width of welded locker unit at both front and back.

D. Accessories:

1. Security Box: 12 inch wide security box with stainless steel coat rod.
2. Foot Locker with Reinforced Seat: 4 gauge cold rolled steel with Security-Plus ventilation, seat opens for storage.
3. Shoulder Pad Rack with Helmet Support: Manufacturer’s standard.
4. Hat Shelf: Hat shelf and two single prong wall hooks, one double prong ceiling hook.

E. Finish: Manufacturer’s standard powder-coated finish.

F. Color: As indicated on Drawings or as selected by Architect.

2.7 LOCKER BENCHES AND ACCESSIBLE LOCKER BENCHES

A. Penco Products, Inc. (Basis-of-Design)

B. Provide bench units with overall assembly height of 17-1/2 inches.

C. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.

1. Size: Minimum 9-1/2 inches wide by 1-1/4 inches thick except provide 20- to 24-inch-wide tops where accessible benches are indicated.
2. Laminated clear hardwood with one coat of clear sealer on all surfaces and one coat of clear lacquer on top and sides.

D. Fixed-Bench Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors, and as follows:

1. Tubular Steel:

a. 1-1/2-inch- diameter steel tubing threaded on both ends, with standard pipe flange at top and bell-shaped cast-iron base; with baked-enamel or powder-coat finish; anchored with exposed fasteners.
b. Color: As selected by Architect from manufacturer's full range.

E. Materials:

1. Steel Tube: ASTM A500/A500M, cold rolled.

2.8 FABRICATION

A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.

B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.

1. Configuration: As indicated on Drawings.

C. Equipment: Provide each locker with an identification plate and the following equipment:

1. Single-Tier Units: Shelf, one double-prong ceiling hook, and two single-prong wall hooks.
2. Double-Tier Units: One double-prong ceiling hook and two single-prong wall hooks.
3. Coat Rods: As indicated on Drawings.

D. Knocked-Down Construction: Fabricate metal lockers by assembling at Project site or preassembling at plant prior to shipping, using manufacturer's nuts, bolts, screws, or rivets.

~~D. Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds smooth and flush.~~

E. Accessible Lockers: Fabricate as follows:

1. Locate bottom shelf no lower than 15 inches above the floor.
2. Where hooks, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.

F. Continuous Zee Base: Fabricated in lengths as long as practical to enclose base and base ends; finished to match lockers.

G. Continuous Sloping Tops: Fabricated in lengths as long as practical, without visible fasteners at splice locations; finished to match lockers.

1. Sloping-top corner fillers, mitered.

H. Individual Sloping Tops: Fabricated in width to fit one locker frame in lieu of flat locker tops; with integral back; finished to match lockers. Provide wedge-shaped divider panels between lockers.

I. Recess Trim: Fabricated with minimum 2-1/2-inch face width and in lengths as long as practical; finished to match lockers.

J. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip-joint filler angle formed to receive filler panel.

K. Boxed End Panels: Fabricated with 1-inch- wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

L. Finished End Panels: Fabricated to conceal unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

2.9 ACCESSORIES

A. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.

B. Anchors: Material, type, and size required for secure anchorage to each substrate.

1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls, and elsewhere as indicated, for corrosion resistance.
2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and floors or support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install lockers level, plumb, and true; shim as required, using concealed shims.

1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
2. Anchor single rows of metal lockers to walls near top and bottom of lockers.

B. Knocked-Down Lockers: Assemble with manufacturer's standard fasteners, with no exposed fasteners on door faces or face frames.

~~B.~~C. Equipment:

1. Attach hooks with at least two fasteners.
2. Attach door locks on doors using security-type fasteners.
3. Identification Plates: Identify metal lockers with identification indicated on Drawings.

a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.

~~C.~~D. Trim: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.

1. Attach recess trim to recessed metal lockers with concealed clips.
2. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
3. Attach sloping-top units to metal lockers, with closures at exposed ends.
4. Attach boxed end panels using concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
5. Attach finished end panels using fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.

~~D.~~E. Football Lockers: Install football lockers according to manufacturer’s written instructions and approved Shop Drawings.

~~E.~~F. Fixed Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.

~~F.~~G. Accessible Lockers and Accessible Locker Benches: Install accessible lockers and accessible locker benches according to manufacturer's written instructions and according to performance requirements in Article 2.2.

3.3 ADJUSTING

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

3.4 PROTECTION

A. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.

B. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 105113

SECTION 112300 - INSTITUTIONAL LAUNDRY EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes laundry equipment, including:

1. Commercial washer/extractors and tumbler/dryers.

B. Related Sections include the following:

1. Division 22 Section "Domestic Water Piping" for water distribution piping connections to laundry equipment.
2. Division 22 Section "Sanitary Waste and Vent Piping" for drainage and vent piping connections to laundry equipment.
3. [Division 33 Section "Fuel Gas Piping" for gas pipe connections to laundry equipment.]
4. Division 26 Section "Wire and Cables" for services and connections to laundry equipment.

1.3 PERFORMANCE REQUIREMENTS

A. Safety Standards:

1. Washer/Extractor shall be approved for school use by ETL or another acceptable independent testing laboratory. Door lock shall prevent machine operation until door is securely locked.
2. Dryer shall be approved for school use by CSA and CE or another acceptable independent testing laboratory.

B. Extraction force shall not exceed 90 G.

C. Drain valve shall permit overnight soaking in washer/extractor.

D. Provide units with Low dryer temperature setting (of 100 degrees F) for game uniforms.

1.4 SUBMITTALS

A. Product Data: Include material descriptions, dimensions of individual components and profiles, finishes, furnished specialties, and accessories. Include rated capacities, operating characteristics, and utility requirements of equipment.

B. Shop Drawings: Submit shop drawings for each type of laundry equipment showing layout, elevations, rough-in dimensions, and sizes.

C. Operating and Maintenance Data: For laundry equipment to include in operation and maintenance manuals.

1. Submit Parts Manuals for laundry equipment.
2. Include with the manuals the names, addresses, phone numbers of service agencies to service the various items of equipment.

D. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. Manufacturer's Representative: Engage manufacturer's representative to supervise installation and hook-up of all laundry equipment.

B. Regulatory Requirements: Comply with provisions of the following product certifications:

1. NFPA: Provide electrical appliances listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
2. [ANSI: Provide gas-burning appliances that comply with ANSI Z21 Series standards.]
3. UL and NEMA: Provide electrical components required as part of laundry equipment that are listed and labeled by UL and that comply with applicable NEMA standards.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-assembled units, individually factory packaged and protected. Label with manufacturer's name, product name, and model number.

B. Storage (if required): Shall be in a secured, conditioned space and shall remain the Contractor’s equipment until installed in its permanent location.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install laundry equipment until spaces are enclosed and weathertight, wet work in spaces is complete and dry.

B. Field Measurements: Verify actual dimensions of area where laundry equipment is to be installed before purchase and delivery of equipment.

1.8 COORDINATION

A. Coordinate wiring requirements and current characteristics of laundry equipment with building electrical system. See Division 26 Sections.

B. Coordinate layout and installation of plumbing, mechanical, and electrical services for laundry equipment.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace laundry equipment that fail within specified warranty period.

1. Warranty Period: One year for parts and labor from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide the named product or comparable product by one of the following:

1. Belco Athletic Laundry Equipment. (Basis-of-Design)

a. Contact: Mike Beall; belcolaundry@bellsouth.net.

2. American Dryer Corporation.
3. Continental Girbau, Inc.
4. Pellerin Milnor Corporation.
5. Speed Queen.

2.2 LAUNDRY EQUIPMENT

A. Washer Extractor **(ALW)**:

1. Basis of Design: Belco Athletic Laundry System, Belco Model 60.
2. Capacity: 60 lbs.
3. Electrical Requirements: ~~208~~200-240 volt, 3 phase.
4. Wash Cycles:

a. 3-minute soak period.
b. Low level 9-minute wash cycle.
c. Three deep rinse cycles.

5. Dimensions: 50 (H) by 34 (W) by 45(D) inches.
6. Height to Bottom of Door: 20 inches.

7. Base: 6-inch steel base and anchors.
8. Cylinder Size: 30 by 22 inches.
9. Cylinder Volume: 9.0 cubic feet.
10. Extract Speed: 450 rpm.
11. Net Weight: 812 lbs.
12. Water Usage: 45 gallons.
13. Minimum Distance from Dryer: 16 inches.
~~c.~~14. Minimum Distance from Wall: 24 inches.

B. Gas Tumbler/Dryer **(ALD)**:

1. Basis of Design: Belco Athletic Laundry System; Athletic Dryer, Model 75.
2. Capacity: up to 75 lbs.
3. Electrical Requirements: 110 volt, single phase.
4. Temperature Settings: Dryer has variable settings to accommodate the following:

    a. Game Uniforms: 100 degrees F.
    b. Practice Uniforms: 140 degrees F.
    c. Towels: 180 degrees F.

5. Airflow Drying: 1200 CFM.
~~5.~~6. Compartment for drying of athletic gear other than clothing.
7. Lint trap door for ease of access and cleaning (Unlockable).
8. Dimensions: 75 (H) by 38-1/4 (W) by 50 (D) inches.
9. Basket Size: 37 by 36 inches.
10. Basket Volume: 22.40.
11. Motor Size: 1 HP.
12. Gas BTU Per Hour: 175,000.
13. Minimum Ceiling Clearance: 12 inches.
~~6.~~14. Minimum Wall Distance: 18 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and floors, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Examine roughing-in for electrical power plumbing and mechanical system(s) to verify actual locations of connections before installation of laundry equipment.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install laundry equipment in strict accordance with manufacturer’s written instructions and approved Shop Drawings. Comply with requirements for anchorage and grouting.

B. Comply with requirements specified in Divisions 22 and 23 Sections for connecting laundry equipment to plumbing and mechanical system(s).

C. Comply with requirements specified in Division 26 Sections for connecting laundry equipment to electrical power system.

D. Scope of Installation services:

1. Set equipment in place and leave ready for final hook-up.
2. Furnish Integral equipment required for proper operation of laundry equipment.
3. Provide and install piping, fittings, valves and material required for final hook-up and perform final hook-up per manufacturer's and code requirements.
4. Furnish wiring, conduit, fittings, all accessories and materials required for final hook-up and perform final hook-up per manufacturer's and code requirements.

3.3 ADJUSTING AND CLEANING

A. Test, adjust, and verify operation of each appliance. Repair or replace items found to be defective or operating below rated capacity.

B. Verify that controls and safety features are functioning.

C. Owner Instruction: Instruct Owner in proper operation and maintenance for each item of laundry equipment.

D. Repair or replace damaged parts, dents, buckles, abrasions, and other defects affecting appearance or serviceability. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION 112300

SECTION 113013 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Refrigeration appliances.

B. Related Requirements:

1. Section 112300 “Institutional Laundry Equipment,” for commercial grade washer (extractors) and dryers.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include installation details, material descriptions, dimensions of individual components, and finishes for each appliance.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

B. Samples: For each exposed product and for each color and texture specified, in manufacturer's standard size.

C. Product Schedule: For appliances.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer.

B. Product Certificates: For each type of appliance.

C. Field quality-control reports.

D. Sample Warranties: For manufacturers' special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For each residential appliance to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain residential appliances from single source.

2.2 PERFORMANCE REQUIREMENTS

A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Accessibility: Where residential appliances are indicated to comply with accessibility requirements, comply with applicable provisions in the ABA standards of the Federal agency having jurisdiction and ICC A117.1.

2.3 REFRIGERATOR/FREEZERS (CFCI)

A. Refrigerator / Freezer (**REF-1**): Residential style, single-door refrigerator/freezer with freezer on top and complying with AHAM HRF-1.

1. Basis of Design: GE Refrigerator; Product No. GDE21EGKBB, Bottom-Freezer Refrigerator.
2. Location: As indicated on Drawings.
3. Quantity: 1 total.
4. Storage Capacity:

    a. Total Capacity: 21.0 cu.ft.
    b. Refrigeration Compartment Volume: 14.93 cu. ft
    c. Freezer Volume: 6.04 cu. Ft.

5. Dimensions: 69 7/8 inches (H) by 36 5/8 inches (D) by 29 3/4 inches (W).
6. Type: Freestanding.
7. General Features:

    a. Full door with pullout drawer.
    b. Door alarm included.

c. Interior LED lighting in both fresh food and freezer compartments.
d. Digital temperature display.
e. GE water filtration with water filter indicator light.
f. Fresh Food Compartment Storage: Vegetable crisper.3 glass shelves, 4 door bins, 3 cabinet drawers.
g. Freezer Storage: Freezer drawer with two storage baskets.
h. Factory installed icemaker.
i. DefrostType: Frost Guard.

8. Finish: High gloss, factory-applied black finish.

2.4 ICE MAKING MACHINES (CFCI)

A. Freestanding Ice Machine (**IM**): Large ice machine with built-in storage.

1. Basis of Design: Mantowoc Neo/80 Undercounter Ice Machine; Product No. UDE-0080A.
2. Location: As indicated on Drawings.
3. Quantity: 1 total.
4. Dimensions: 30 inches (H) by 22.34 inches (D) by 19.69 inches (W).
5. Adjustable Leg Range: 6 to 7.25 inches.
6. Ice Production Per 24-hour period:

a. 70° F Air/50°F Water: 102 lbs.
b. 90° Air/70°F Water: 71 lbs.

7. Storage Bin Capacity: 31 pounds.
8. Refrigerant: CFC-Free R-134A refrigerant.
9. Electrical: 115 volt, 60 Hz, single phase, 5.2 amps.
10. General Features:

a. Seamless one-piece polyethylene bin liner.
b. Ice Shape: 7/8 by 7/8 by 7/8 inch dice-shaped cubes.
c. Dispenser Style: Push button.
d. Condenser Type: Air-cooled.
e. Front air intake and exhaust

11. Front Panel(s): Manufacturer's standard, stainless steel finish.

2.5 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.

B. Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install appliances according to manufacturer's written instructions.

B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections :

1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
2. Operational Test: After installation, start units to confirm proper operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.

B. An appliance will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain residential appliances.

END OF SECTION 113013

SECTION 1116843 – EXTERIOR SCOREBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following equipment:

1. Exterior, electronic, football, baseball and softball scoreboards including control center and other accessories for complete functional installation.
2. One scoreboard shall be provided for the Football Field and one scoreboard for the Baseball Field and one scoreboard for the Softball Field.

1.2 PERFORMANCE REQUIREMENTS

A. Seismic and Wind Performance: Provide backboards capable of withstanding the effects of earthquake motions and wind loads determined according to International Building Code requirements.

1.3 SUBMITTALS

A. Product Data: For scoreboards, controls, and accessories. Include descriptions of control functions.

1. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

B. Shop Drawings: For equipment. Include the following:

1. Shop drawings showing locations, face layout, dimensions, construction, electrical wiring diagrams, interface with structural supports, and method of anchorage.

C. Structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation including loads, point reactions, and locations for attachment of equipment to structure.

D. Qualification Data: For Installer.

E. Operation and Maintenance Data: For equipment to include in emergency, operation, and maintenance manuals.

F. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

B. Source Limitations: Obtain each type of equipment through one source from a single manufacturer.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Scoreboards and other electrical components shall be certified for use in United States and Canada by Underwriter Laboratories, (UL), Inc. and shall bear either UL or C-UL label.

E. Scoreboards and other electrical components shall be electrically grounded in accordance with National Electrical Code (NEC), Article 600.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not install equipment until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Verify position and elevation of components for equipment.

1.6 COORDINATION

A. Coordinate layout and installation of overhead-supported equipment and suspension system components with other construction including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of equipment that fail in materials or workmanship within specified warranty period.

1. 5 years parts and labor guarantee for scoreboards, wireless controls, and accessories.

PART 2 - PRODUCTS

2.1 SCOREBOARDS

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

1. Varsity Scoreboards - Models 3312 and ~~7450~~ 7536 (Basis of Design)
2. Fair Play Scoreboards.
3. Daktronics, Inc.
4. Nevco Scoreboard Co.

B. Type: Varsity Scoreboard ~~– 7450~~ 7536 Football Scoreboard with Outdoor Truss Accessory and Two Sponsor Panels

1. 8'x 5'x 8", 190 lbs
2. 15" and 9″ LED digits 2" possession ind
3. Home/Guest Score, To Go, and Ball On up to 99
4. Clock counts down from 99:59
5. Galvanized steel cabinet with powder coat finish
6. Outdoor Horn
7. Wireless remote control: optional rechargeable controller battery and control carrying case.
8. 5- Year Limited Warranty
9. Powder coat color to be selected from standard colors and approved by Owner.

C. Type: Varsity Scoreboard – 3312 Baseball/Softball Scoreboard

1. 8'x 5'x 8", 180 lbs
2. 15″ LED digits with protective shields
3. Home/Guest score up to 99, Innings up to 9
4. Clock counts down from 99 minutes
5. 2″ Round- Ball, Strike, Out Indicators
~~5.~~6. Two Sponsor Panels.
~~6.~~7. Galvanized steel cabinet with powder coat finish
~~7.~~8. Wireless remote control: optional rechargeable controller battery and controller carrying case
~~8.~~9. 5- Year Limited Warranty
~~9.~~10. 20-amp, 120-volt, 60-hertz, grounded AC circuit
~~10.~~11. Powdercoast color to be selected from standard colors and approved by Owner.

D. Accessories: Provide each scoreboard with junction boxes, mounting hardware, and other accessories as required for complete, functional installation.

2.2 FINISHES

A. Powder Coat Finish.

1. Color: To be selected from standard colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for play court layout, alignment of mounting substrates, installation tolerances, operational clearances, accurate locations of connections to building electrical system, and other conditions affecting performance.

1. Verify critical dimensions.
2. Verify design and construction of concrete footings and steel posts and other structural framing detailed on Drawings and specified in other sections. Ensure that spacing of

supports aligns with scoreboard attachment points and that connections holes are accurately sized and located.

3. Verify design and provision of electrical supply, conduit, wiring, disconnect switch, weatherproof receiver and circuit boxes, and other electrical components for powering scoreboard and controls
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Comply with manufacturer's written installation instructions and competition rules indicated for each type of equipment. Complete equipment field assembly, where required.

B. Clearances:

1. 10 feet minimum clearance between ground and scoreboard bottom.
2. 36 inches minimum clearance behind scoreboard for opening of module doors.

C. Rigidly mount scoreboards and accessories level and plumb. Attach scoreboards to support framing with S and J brackets, bolts, washers, and self-locking nuts.

3.3 FIELD QUALITY CONTROL

A. After installation, field test scoreboards and accessories for operating functions. Ensure that scoreboards accurately perform all operations. Correct deficiencies.

3.4 CLEANING

A. After completing equipment installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.

B. Replace equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

C. Protect scoreboards and finishes from other construction operations

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to provide demonstration and training session for Owner's representative covering operation and maintenance of electronic scoreboard.

END OF SECTION 116843

SECTION 133400 – ENGINEERED POST FRAME STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes (~~In Base Bid and~~ Add Alternate No. 2):

1. Engineered wood-framed structures consisting of the following components:

a. Factory-engineered wall columns.
b. Factory-engineered roof truss.
c. Factory-engineered metal roof and wall panels.
d. Prefinished metal trim items.
e. Prefinished ridge vents and soffits.
f. Cast-in-place concrete foundations supporting engineered wood-framed structures.

1.2 REFERENCES

A. Reference Standards:

1. Preservative Treated Lumber:

a. American Wood Preservers Association (AWPA).

2. Lumber grading rules and wood species:

a. National Design Specifications for Wood Construction, current edition.
b. Northeastern Lumber Manufacturer's Association, Inc. (NELMA).
c. Southern Pine Inspection Bureau (SPIB): Southern Pine.
d. West Coast Lumber Inspection Bureau (WCLIB): Douglas Fir.
e. Western Wood Products Association (WWPA): Douglas Fir and Ponderosa Pine.

3. MSR Lumber Producers Council (MSR) for machine stress rated lumber.
4. National Design Specifications for Wood Construction.
5. National Design Standard for Metal Plate Connected Wood Truss Construction (TPI).

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-engineered product. Indicate component materials, dimensions, profiles, and construction and installation details.

1. Include information for specialty accessory products specified for this Project.
2. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

3. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to truss fabricator.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Sizes, stress grades, and species of lumber.
2. Anchor-bolt layout.
3. Foundation layout, sizes, and reinforcing.
4. Structural Framing Drawings: Show complete fabrication of primary and secondary framing. Include provisions for the following information:

    a. Slope or depth, span, and spacing of truss.
    b. Heel bearing height.
    c. Design loading to include:

        1) Top chord live load.
        2) Top chord dead load.
        3) Bottom chord dead load.
        4) Concentrated loads and their points.

    d. Adjustments to lumber and plate design values for conditions of use.
    e. Plate type, thickness of gauge, and size.
    f. Lumber size, species and grade for each member.

5. Metal Roof and Wall Panel Layout Drawings: Show layouts of metal panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, trim, flashings, closures, and special details. Indicate the following components:

    a. Roof mounted items.
    b. Wall mounted items.

6. Submit Shop Drawings that have been engineered and certified by professional engineer licensed in the State of South Carolina Include seal and signature of professional engineer on Shop Drawings.

C. Accessory Drawings: Include details of the following items:

1. Flashing and trim.
2. Gutters.
3. Downspouts.

D. Delegated Design Data: Truss engineering calculations for loading and stresses, bearing seal and signature of professional engineer licensed in the State in which Project is located. Include the following calculations:

1. Minimum design shall meet design standards of latest edition of the International Building Code unless other, more stringent requirements are in force in Project location.

2. Bending moments and axial forces for each member.
3. Basic plate design values.
4. Design analysis for each joint indicating that proper plates have been used.
5. Provide design calculations for exterior walls, canopies, soffit systems, and lateral bracing walls. Design wind loads and lateral bracing loads are indicated on structural Drawings.
6. Provide design calculations for all foundations required to support post frame structures.
7. Submit design calculations that have been engineered and certified by professional engineer licensed in the State in which Project is located. Include seal and signature of professional engineer on calculations.

E. Samples for Initial Selection: For units with factory-applied color finish, color chart of manufacturer's standard colors.

F. Samples for Verification: Actual sample of finished products for each type of exposed finish.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Engineered wood products.

B. Quality Control Submittals:

1. Test Reports: Certified test reports showing compliance with specified performance characteristics.
2. Certification: Manufacturer’s certification that Products furnished meet specified design and performance criteria.

C. Submit written proof of third party inspection program in force for truss manufacturer used on Project.

D. Certifications: Certify that specified roof and wind load requirements are met.

E. Delegated Design Engineer Qualifications: For engineered post frame structures.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer with minimum 5 years documented experience that participates in recognized quality-assurance program that complies with quality-control procedures and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.

1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.

2. Manufacturer shall have engineering department.
3. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by qualified professional engineer.

B. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice State of South Carolinia where Project is located and who is experienced in providing engineering services of the type indicated.

C. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

D. Source Limitations: Obtain engineered post frame building components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Handle and store materials per manufacturer's requirements.

B. Handle and store trusses to comply with recommendations in TPI BCSI**,** "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
3. Provide for air circulation around stacks and under coverings.
4. Store trusses to avoid contact with other materials that could create staining or discoloration.

C. Inspect trusses upon deliver to Project site and notify manufacturer immediately if members have damage from handling or show discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

1.7 WARRANTY

A. Manufacturer's Special Warranty – Treated Material: Manufacturer agrees to repair, restore, or replace columns that fail in materials within specified warranty period.

1. Warranty Period: 50 years from date of Substantial Completion.
2. Manufacturer shall repair treated structural columns that fail because of insect damage or because of decay that occurs under normal conditions and proper use. If manufacturer is not able to repair structural posts to satisfaction of Architect and Owner, manufacturer shall replace damaged treated structural columns.

B. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes the following:

a. Color fading more than 5 Hunter units when tested per ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested per ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: From date of Substantial Completion, 40 years on chalk; 30 years on color change.
3. Warranty Exclusions: Manufacturer will not warrant metal panel finishes damaged due to exposure to atmospheric pollutants including animal waste or other corrosive conditions. Manufacturer will not warrant labor by others.
4. Manufacturer shall repair painted steel roofing or siding panels if the paint peels, cracks, checks, flakes or blisters to an extent that is apparent by ordinary outdoor visual observation when exposed to normal weather and atmospheric conditions. If manufacturer is not able to repair steel panels to satisfaction of Architect and Owner, manufacturer shall replace damaged steel panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design: Subject to compliance with requirements, provide basis-of-design indicated or Architect approved comparable products by one of the following, or Architect approved equal manufacturer:

1. Energy Panel Structures, Inc.
2. Morton Buildings.
3. Midwest Manufacturing.
4. Cleary Building Corp.

2.2 PERFORMANCE CRITERIA

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design engineered post frame structures.

B. Design Requirements:

1. Design wood members per formulas published in National Design Specifications (NDS) for Wood Construction.
2. Design light meta-toothed connector plates and joint design in compliance with Truss Plate Institute’s (TPI) National Design Standard for Metal Plate Connected Wood Truss Construction.
3. Include unbalanced roof loads required by ASCE-7, current edition.

2.3 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Maximum moisture content of 19 percent or per appropriate grading rules. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of inspection agency approved by ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Laminated columns.
2. Baseboards.
3. Hold down blocks.

2.4 MATERIALS - WOOD

A. Laminated Columns: Factory-fabricated from minimum 3 ply 2 inch by 6 inch #1 or better southern yellow pine.

1. Columns to 20 Feet Lengths: Full-length (unspliced) nail laminated plys. Provide middle ply with short truss support block.
2. Columns over 20 Feet Lengths: Spliced laminated plies per approved Shop Drawings and manufacturer's design.
3. Preservative-Treatment: Treat portions of columns designed to be in contact with ground to net retention of 0.60 pounds per cubic foo of CCA per AWPA U1 requirements.

B. Wood Trusses: Factory-fabricated of surfaced lumber.

1. Lumber:

a. Top and Bottoms Chords: No. 1 or better Southern yellow pine or comparable Spruce- pine-fir.
b. Webs: No. 2 or better Southern yellow pine or SPF.

2. Metal Connector Plates: Fabricated from ASTM A653; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A); G60 hot-dip galvanizing coating designation.

a. Plate Thicknesses: 0.036 inch and 0.0556 inch thick.

C. Baseboards: 2 inch by 8 inch No. 2 or better Southern yellow pine, tongue-and-groove.

1. Preservative-Treatment: Treat baseboards for ground contact conditions. per AWPA U1 requirements. Preservative shall penetrate 100 percent of sapwood.

D. Wall Girts: 2 inch by 6 inch girts, No. 1 or better Southern yellow pine.

E. Purlins and Truss Ties: 2 inch by 4 inch laid on edge, MSR SPF 1650.

1. Purlins may be installed over top chord of truss, flat, or in purling hangers. Where purlins and truss ties are set in hangers, provide 2 inch by 6 inch laid on edge, MSR SPF 1650 or No. 1 or better Southern yellow pine.

F. Overhang Framing: Fabricated rafter frames.

1. Provide factory beveled facia boards, 2 inch by 6 inch Spruce-pine-fir, No. 2.

G. Wind Bracing:

1. 2 inch by 6 inch, No. 2 or better Spruce-pine-fir from end wall column to first truss back.
2. 2 inch by 4 inch diagonal in roofline bracing as required by design.

H. Headers: Provide built-up No. 1 or better Southern yellow pine headers as required to meet loading designs.

I. Incidental Framing: No.2 or better 2 inch by 4 inch.

2.5 MATERIALS – PREFINISHED MATERIALS

A. Metal Panels: Exposed-fastener metal roof and wall panels, formed with raised ribs and recesses.

1. Material: Zinc-coated (galvanized) steel sheet, 0.0125 inch nominal thickness.

a. Exterior Finish: Siliconized polyester.
b. Color: Selected by Architect from manufacturer's full range.

2. Rib Spacing: 2 major ribs at 9 inches on center. 2 minor ribs at 3 inches on center between major ribs.
3. Panel Coverage: 36 inches.
4. Panel Height: 3/4 inch.

B. Metal Trim: Match material and color of metal panels. Provide trim for corners, ridge lines, rakes, eaves, and panel bases.

1. Lengths: Minimum 10 feet .
2. Trim, overhang facias, track covers, and slide door jambs available in building panel covers.

C. Ridge Vent: Manufacturer’s standard pre-engineered ridge cap or ridgelite, flashings, and eave and gable trim. Field-fabricate minor flashings as indicated on approved Shop Drawings.

1. Provide manufacturer’s standard ridge vents as indicated on Drawings
2. Continuous Vented Ridge: 12 square inches per linear foot.

D. Standing-Seam, Vertical-Rib, Metal Roof Panels: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced or a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.

1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, minimum 0.018-inch nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Exterior Finish: Two-coat fluoropolymer.
b. Color: As selected by Architect from manufacturer's full range.

2. Clips: Manufacturer’s standard.
3. Joint Type: Mechanically seamed.
4. Panel Height: 2 inches unless otherwise indicated.

E. Finishes:

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2.6 CONCRETE FOUNDATIONS

A. Refer to Section 033000 “Cast-in-Place Concrete” for ready mix concrete and related materials required for concrete foundation work.

2.7 RELATED MATERIALS

A. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.

1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.

B. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and

rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

C. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

2.8 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where trusses are exposed to weather, in ground contact, made from pressure-preservative treated wood, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153.
2. Exposed Fastener Heads: Match color of steel panel.
3. Where steel panels or trim is attached to preservative-treated lumber, provide fasteners of unpainted Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F1667.

1. Framing Lumber: 10d, 16d and 60d ring shank nails.
2. Machine Bolts: Minimum grade 1, A307.
3. Metal Panels: Minimum 1-1/2 inch No. 10 screw fasteners with EPDM sealing washers bearing on weather side of metal panels.

a. Match color of metal panels.

2.9 ACCESSORIES

A. Batting Cage Netting:

1. Manufacturers: Subject to compliance with requirements, available manufacturers include, but are not limited, to the following:

a. Batting Cages, Inc. (BCI).
b. Christensen Net Works.
c. Cover Sports.
d. West Coast Netting.

2.10 FABRICATION

A. Shop-fabricate wood trusses in TPI inspected plant.

B. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.

C. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.

D. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

1. Fabricate wood trusses within manufacturing tolerances in TPI 1.

E. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.

1. Engage land surveyor to perform surveying.

C. Verify that mechanical and electrical utilities are in correct position.

D. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent framing, connections, and bracing are in place unless indicated otherwise.

3.3 ERECTION OF FRAMING

A. General: Do not use materials that are unsound, warped, improperly finished, or with defective surfaces, sizes, or patterns.

1. Comply with frame manufacturer's approved Shop Drawings for details and building erection.
2. Comply with NFBA document “Accepted Practices for Post-frame Construction Framing Tolerances.”

B. Columns:

1. Auger hole to depth of diameter indicated on Drawings.
2. Pour ready mix concrete pad in bottom of each hole per Drawings.
3. Install hold down blocks at bottom of each column per approved Shop Drawings.
4. Accurately position column in hole.
5. Backfill with dry soil compacted in 8 inch lifts.

C. Wall Girts: Install at centers indicated on Drawings.

1. If required, install overhang framing at top of wall girts.

D. Trusses:

1. Set trusses in place in center of column using lifting methods as approved by manufacturer.
2. When trusses are properly positioned, install 1/2 inch by 5-1/2 inch machine bolt and manufacturer recommended 20d ring shank nails through 2 of column laminates and truss heel.
3. Brace trusses per WTCA guidelines and BCSI Manual

E. Purlins: Install purlins with fasteners and at spacings per approved Shop Drawings.

F. Truss Ties: Install truss ties at locations recommended by structure manufacture and per approved Shop Drawings

1. Run truss ties from end wall to end wall.

G. Incidental Framing: Install 2 inch by 4 inch or 2 inch by 6 inch blocking as required per structure manufacturers recommendations.

3.4 METAL PANEL INSTALLATION, GENERAL

A. Install metal panels per manufacturer’s established construction procedures.

B. Install metal panels and components plumb, square, straight, and true to lines, and to assure freedom from rattles.

C. Take care when cutting prefinished materials to ensure cuttings do not remain on finished surface.

D. Properly install fasteners taking care to not under- or overdrive.

3.5 METAL PANEL INSTALLATION

A. Roofing Panels: Install panels perpendicular to supports aligned straight with end fascias and fasten to purlins. Anchor with fasteners at spacings recommended by manufacturer and design loads.

B. Wall Panels: Install metal panels perpendicular to wall girt and purlin supports, aligned level and plumb. Anchor with fasteners at spacings recommended by manufacturer and design loads.

C. Vented Ridges: Fasten vented ridges to structure as indicated on Drawings, maintaining manufacturer’s minimum clear throat opening.

D. Trim Items: Install trim items at base, wainscot transitions, corners, top of steel siding, facia, gables, and ridges using no less than 1 inch screw fasteners.

1. Trim items shall be installed at the base, at any wainscot transition, corners, top of steel siding, fascias, gables and ridge using appropriate 1” screw fasteners.

E. Closure Strips: Provide closure strips at top and bottom of roofing panels.

3.6

A. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

B. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

C. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

3.7 BATTING CAGE NETTING INSTALLATION

A. Install batting cage netting according to manufacturer's written instructions and approved Shop Drawings.

END OF SECTION 133400

SECTION 133413 – GREENHOUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes fabricated greenhouses.

1.3 SYSTEM DESCRIPTION

A. General: Provide a complete, integrated set of mutually dependent components and assemblies that form a greenhouse capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior. Include primary and secondary framing, and accessories complying with requirements indicated.

1. Provide greenhouse system of size and with spacings, slopes, and spans indicated.

1.4 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following greenhouse system components:

1. Structural-framing system.
2. Glazing
3. Accessories.
4. Mechanical Equipment.
5. Electrical Equipment.
6. Irrigation System.
7. Plumbing.

B. Shop Drawings: For the following greenhouse components. Include plans, elevations, sections, details, and attachments to other work.

1. Anchor-Bolt Plans: Submit anchor-bolt plans before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.

2. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.

C. Delegated-Design Submittal: For greenhouses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For equipment to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer to assume engineering responsibility and perform work of this Section who has specialized in installing greenhouse systems similar to those required for this Project and who is acceptable to manufacturer.

1. Engineering Responsibility: Engage a qualified professional engineer to prepare or supervise the preparation of data for greenhouse systems, including drawings, testing program development, test-result interpretation, and comprehensive engineering analysis that shows systems' compliance with specified requirements.

B. Delegated Design: Design greenhouses, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1. Professional engineer shall be legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

C. Source Limitations: Obtain primary metal building system components, including structural framing, through one source from a single manufacturer.

D. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."

E. Structural Steel: Comply with AISC's "Specification for Structural Steel Buildings--Allowable Stress Design, Plastic Design," or AISC's "Load and Resistance Factor Design Specification for Structural Steel Buildings," for design requirements and allowable stresses.

F. Cold-Formed Steel: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members," or AISI's "Load and Resistance Factor Design Specification for Steel Structural Members," for design requirements and allowable stresses.

G. Field Measurements:

1. Established Dimensions for Foundations: Comply with established dimensions on approved anchor-bolt plans, establishing foundation dimensions and proceeding with fabricating structural framing without field measurements. Coordinate anchor-bolt

installation to ensure that actual anchorage dimensions correspond to established dimensions.

1.7 COORDINATION

A. Coordinate size and location of concrete foundations and casting of anchor-bolt inserts into foundation walls and footings. Concrete, reinforcement, and formwork requirements are specified in Section 033000 "Cast-in-Place Concrete."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design greenhouses.

B. Structural Performance: Greenhouse shall withstand the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

1. Loads: As indicated on Drawings.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

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. Safety Glazing Products: Category II materials complying with testing requirements in 16 CFR 1201.

2.2 MANUFACTURERS

A. Basis of Design: Subject to compliance with requirements, provide product indicated, or a comparable product approved by the Architect. Suggested manufacturers include, but are not limited, to the following:

1. Nexus; National Cultivator Elite; a part of Prospiant.
2. IGC - International Greenhouse Co, Inc.
3. Stuppy Greenhouse.

2.3 MATERIALS

A. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.

B. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B or C, structural tubing.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grades 33 through 80 or High-Strength Low Alloy Steel (HSLAS), Grades 50 through 80; with G60 coating designation; mill phosphatized.

D. Structural Pipe and Tubes: ASTM B 429, Extruded aluminum, 6063-T6 alloy and temper. Provide beams and columns of sizes indicated; minimum .125" thick.

E. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of alloy 5005-H15.

F. Glazing: Translucent, extruded-polycarbonate sheet with cellular cross section that provides isolated airspaces and that is coextruded with a UV-protective layer.

1. Plastic Self-Ignition Temperature: 650 deg F or more per ASTM D 1929.
2. Smoke-Developed Index: 450 or less per ASTM E 84, or 75 or less per ASTM D 2843.
3. Flame-Spread Index: Not more than 25 per ASTM E 84.

G. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.

H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.4 STRUCTURAL FRAMING

A. General:

1. Primary Framing: Shop fabricate framing components to indicated size and section with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

a. Make shop connections by welding or by using high-strength bolts.
b. Join flanges to webs of built-up members by a continuous submerged arc-welding process.
c. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
d. Weld clips to frames for attaching secondary framing members.
e. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary structural members with specified primer after fabrication.

2. Secondary Framing: Shop fabricate framing components to indicated size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates

required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

a. Make shop connections by welding or by using non-high-strength bolts.
b. Shop Priming: Prepare uncoated surfaces for shop priming according to SSPC-SP 2. Shop prime uncoated secondary structural members with specified primer after fabrication.

B. Primary Framing: Manufacturer's standard structural primary framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

C. Fabricate framing from cold-formed, structural-steel sheet, unless otherwise indicated.

2.5 COMPONENTS

A. Flooring: Concrete slab on grade, complying with Section 033000 "Cast-in-place Concrete."

B. Doors: Manufacturer's standard single walk door.

1. Factory finished.
2. Door Hardware: ADA compliant, manufacturer's standard.

C. Flashing: Aluminum flashing for sills, gables, partitions, corners, equipment and gutters.

D. Glazing: Clear twin-wall polycarbonate.

1. Thickness: 8 mm.

E. Penetration Panels: 1/8-inch thick aluminum panels for utility penetrations.

2.6 EQUIPMENT

A. Irrigation System:

1. Full Overhead Irrigation System included 8 zone controller, bench drip, mist, watering and baskets.

~~A.~~B. Fans:

1. Motor: 115V, 60 Hz, enclosed.
2. Housing: Slant wall with guard and shutters.
3. Quantity: Two.

~~B.~~C. HAF Fans:

1. Stamped aluminum, three blade fan.

2. Motor: 1/15 HP, 9 Amp, 100 watts, 115V, 60 Hz, enclosed.
3. Quantity: Two.

~~C.~~D. Heaters:

1. Basis of Design: Modine; Hot Dawg HD/HDS 60
2. Attachment: Dedicated hanger to structural frame.
3. Double wall vent pipe with clean-out tee and flashing.
4. Quantity: One.

~~D.~~E. Environmental Controller: Wadsworth Control Systems; Step Up Controller.

~~E.~~F. Vent: Single motorized ridge vent with insect screens.

~~F.~~G. Task Lighting: Manufacturer's standard.

~~G.~~H. Sink: Freestanding, 16 gauge stainless steel, 20 by 20-inch single compartment sink. Provide 18-inch drain board on both sides of sink. Manufacturer's standard stainless-steel legs and cross bracing. Provide custom depth as required to comply with ADA requirements.

1. Basis of Design: Advance Tabco; Regaline, Spec-Line

2.7 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.8 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123/A 123M, for galvanizing steel and iron products.
2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

2.9 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: As selected by Architect from manufacturer's full range.

2.10 FABRICATION, GENERAL

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual": Chapter IV, Section 9, "Fabrication and Erection Tolerances."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before erection proceeds, survey elevations and locations of concrete-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with Erector present, for compliance with requirements and metal building system manufacturer's tolerances.

3.2 ERECTION OF STRUCTURAL FRAMING

A. Erect greenhouse system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base Plates: Clean concrete-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing true to line, level, plumb, rigid, and secure. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist cure grout for not less than seven days after placement.

G. Erection Tolerances: Maintain erection tolerances of structural framing within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

3.4 CLEANING AND PROTECTION

A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.

1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or SSPC-SP 3, "Power Tool Cleaning."
2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

C. Touchup Painting: Cleaning and touchup painting are specified in Division 09 painting Sections.

END OF SECTION 133413

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal building systems.
2. Structural-steel framing.
3. Metal roof panels.
4. Metal wall panels.
5. ~~Thermal insulation.~~
6. ~~6.~~5. Accessories.

B. Related Requirements:

1. Division 03 concrete Sections for anchor rod installation, concrete, reinforcement, and formwork requirements.
2. Section 083323 "Overhead Coiling Doors" for coiling vehicular doors in metal building systems.

1.2 DEFINITIONS

A. Terminology Standard: See MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in standards referenced by this Section.

1.3 COORDINATION

A. Coordinate sizes and locations of concrete foundations and casting of anchor-rod inserts into foundation walls and footings. Anchor rod installation, concrete, reinforcement, and formwork requirements are specified in Division 03 concrete Sections.

B. Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conferences: Conduct conferences at Project site.

1. Metal Building Systems Conference: Review methods and procedures related to metal building systems including, but not limited to, the following:

a. Condition of foundations and other preparatory work performed by other trades.

b. Structural load limitations.
c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
d. Required tests, inspections, and certifications.
e. Unfavorable weather and forecasted weather conditions and impact on construction schedule.

2. Metal Building Roof Panel Conference: Review methods and procedures related to metal roof panel assemblies including, but not limited to, the following:

a. Compliance with requirements for purlin and rafter conditions, including flatness and attachment to structural members.
b. Structural limitations of purlins and rafters during and after roofing.
c. Flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
d. Temporary protection requirements for metal roof panel assembly during and after installation.
e. Roof observation and repair after metal roof panel installation.

3. Metal Building Wall Panel Conference: Review methods and procedures related to metal wall panel assemblies including, but not limited to, the following:

a. Compliance with requirements for support conditions, including alignment between and attachment to structural members.
b. Structural limitations of girts and columns during and after wall panel installation.
c. Flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
d. Temporary protection requirements for metal wall panel assembly during and after installation.
e. Wall observation and repair after metal wall panel installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes

B. Shop Drawings: By manufacturer of metal building systems. Indicate components by others. Include full building plan, elevations, sections, details, and the following:

1. Anchor-Rod Plans: Submit anchor-rod plans and templates before foundation work begins. Include location, diameter, and minimum required projection of anchor rods required to attach metal building to foundation. Indicate column reactions at each location.
2. Structural-Framing Drawings: Indicate complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.

3. Metal Panel Layout Drawings: Indicate roof and wall. layouts of panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, clip spacing, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; indicate locations of exposed fasteners.

    a. Indicate roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
    b. Indicate wall-mounted items including personnel doors, vehicular doors, windows, louvers, and lighting fixtures.
    c. Indicate translucent panels.

4. Accessory Drawings: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches:

    a. Flashing and trim.
    b. Gutters.
    c. Downspouts.

C. Samples for Verification: Actual sample of finished products for each type of exposed finish.

1. Panels: Manufacturers' standard size. Include fasteners, closures, and other exposed panel accessories.
2. Flashing and Trim: Manufacturers' standard size. Include fasteners and other exposed accessories.
3. Accessories: Samples for each type of accessory.

D. Delegated Design Submittals: For metal building systems, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

1. Name and location of Project.
2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
7. Governing building code and year of edition.
8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, in accordance with governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.

B. Erector and Welding certificates.

C. Material Test Reports: For each of the following products, by a qualified testing agency:

1. Structural steel including chemical and physical properties.
2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
3. Tension-control, high-strength, and bolt-nut-washer assemblies.
4. Shop primers.
5. Nonshrink grout.

D. Source quality control reports.

E. Field quality control reports.

F. Surveys: Show final elevations and locations of major members. Indicate discrepancies between actual installation and the Contract Documents. Have surveyor that performed surveys certify their accuracy.

G. Qualification Statements: For manufacturer erector.

1. Fire-Rated Door Inspector: Submit documentation of compliance with NFPA 80, Section 5.2.3.1.
2. Egress Door Inspector: Submit documentation of compliance with NFPA 101, Section 7.2.1.15.4.
3. Submit copy of DHI Fire and Egress Door Assembly Inspector (FDAI) certificate.

H. Delegated Design Engineer Qualifications: For metal building system.

I. Sample Warranties: For special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panel finishes and door hardware.

1.8 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Material: Furnish extra materials, from the same production run, to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Extra stock material shall be coordinated with Owner.

1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Accreditation: Manufacturer's facility accredited in accordance with IAS AC472.

2. Engineering Responsibility: Metal building system design and preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in State of South Carolina where Project is located and who is experienced in providing engineering services of the type indicated.

B. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in State of South Carolina where Project is located and who is experienced in providing engineering services of the type indicated.

C. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

D. Land Surveyor Qualifications: A professional land surveyor who practices in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.

E. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:

1. AWS D1.1/D1.1M.
2. AWS D1.3/D1.3M.

F. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies is to comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and with the following:

1. DHI Fire and Egress Door Assembly Inspector (FDAI) certification.

G. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies is to comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and with the following:

1. DHI Fire and Egress Door Assembly Inspector (FDAI) certification.

1.10 MOCKUPS

A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup as indicated on Drawings.
2. Build mockups for typical wall metal panels including accessories.

    a. Size: 48 inches long by 48 inches.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

~~D. Protect foam-plastic insulation as follows:~~

~~1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.~~
~~2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.~~
~~3. Complete installation and concealment of foam-plastic materials as rapidly as possible in each area of construction.~~

1.12 FIELD CONDITIONS

A. Weather Limitations: Proceed with panel installation only when weather conditions permit metal panels to be installed in accordance with manufacturers' written installation instructions and warranty requirements.

1.13 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested in accordance with ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 25 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 25 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain metal building system components, including primary and secondary framing and metal panel assemblies, from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal building system.

B. Structural Performance: Metal building systems to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated in accordance with procedures in MBMA's "Metal Building Systems Manual":

1. Design Loads: As indicated on Drawings.
2. Deflection and Drift Limits:

a. Design metal building system assemblies to withstand serviceability design loads without exceeding deflections and drift limits recommended in AISC's "Design Guide No. 3: Serviceability Design Considerations for Steel Buildings."

C. Seismic Performance: Metal building system to withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

E. Fire-Resistance Ratings: Where assemblies are indicated to have a fire-resistance rating, provide metal panel assemblies identical to those of assemblies tested for fire resistance per ASTM E119 or ASTM E108 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL Product iQ, FM Approvals' "Approval Guide," or from the listings of another qualified testing agency.

F. Fire Propagation Characteristics: Exterior wall assemblies containing foam plastics pass NFPA 285 fire test.

G. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

H. Structural Performance for Metal Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:

1. Wind Loads: As indicated on Drawings.

I. Air Infiltration for Metal Roof Panels: Air leakage of not more than 0.06 cfm/sq. ft. when tested in accordance with ASTM E1680 or ASTM E283/E283M at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

J. Air Infiltration for Metal Wall Panels: Air leakage of not more than 0.06 cfm/sq. ft. when tested in accordance with ASTM E283/E283M at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

K. Water Penetration for Metal Roof Panels: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

L. Water Penetration for Metal Wall Panels: No water penetration when tested in accordance with ASTM E331 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

M. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

2.3 METAL BUILDING SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following subject to approval of Architect:

1. Ceco Buildings Systems.
2. Chief Buildings.
3. Kirby Building Systems.
4. Mid-West Steel Building Co.
5. Nucor Building Systems.
6. Simple Saver® System Thermal Design.
7. Star Building Systems, A Robertson Ceco Co.
8. Varco Pruden Buildings.

9. Vulcan Steel Structures, Inc.

B. System Description: Provide a complete, integrated set of mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.

1. Primary-Frame Type:

a. Rigid Clear Span: Solid-member, structural-framing system without interior columns.
b. Rigid Modular: Solid-member, structural-framing system with interior columns.
c. Truss-Frame Clear Span: Truss-member, structural-framing system without interior columns.
d. Truss-Frame Modular: Truss-member, structural-framing system with interior columns.
e. Lean-to: Solid- or truss-member, structural-framing system, designed to be partially supported by another structure.

2. End-Wall Framing:

a. Manufacturer's standard, for buildings not required to be expandable, consisting of primary frame, capable of supporting one-half of a bay design load, and end-wall columns or load-bearing end-wall and corner columns and rafters.

3. Secondary-Frame Type: Manufacturer's standard purlins and joists and partially inset-framed girts.
4. Eave Height: Manufacturer's standard height, as indicated by nominal height on Drawings.
5. Bay Spacing: As determined by manufacturer or as indicated on Drawings.
6. Roof Slope: Manufacturer's standard for frame type required.
7. Roof System: Manufacturer's standard standing-seam, vertical-rib, metal roof panels.
8. Exterior Wall System: Manufacturer's standard exposed-fastener, tapered-rib, metal wall panels.

2.4 STRUCTURAL-STEEL FRAMING

A. Structural Steel: Comply with AISC 360.

B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."

C. Cold-Formed Steel: Comply with AISI S100 for design requirements and allowable stresses.

D. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafters, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.

    a. Slight variations in span and spacing may be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.

2. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
3. Rigid Modular Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
4. Truss-Frame, Clear-Span Frames: Rafter frames fabricated from joist girders, and I-shaped column sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
5. Truss-Frame Modular Frames: Rafter frames fabricated from joist girders, and I-shaped column sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
6. Long-Bay Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide interior columns fabricated from round steel pipes or tubes, or shop-welded, built-up steel plates.
7. Frame Configuration: As indicated on Drawings.
8. Exterior Column: Uniform depth or tapered.
9. Rafter: Uniform depth or tapered.

E. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:

1. End-Wall and Corner Columns: I-shaped sections fabricated from structural-steel shapes; shop-welded, built-up steel plates; or C-shaped, cold-formed, structural-steel sheet.
2. End-Wall Rafters: C-shaped, cold-formed, structural-steel sheet; or I-shaped sections fabricated from shop-welded, built-up steel plates or structural-steel shapes.

F. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating, to comply with the following:

1. Purlins:

    a. C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; minimum 2-1/2-inch- wide flanges.
    b. Steel joists of depths indicated on Drawings.

        1) Depth: As indicated on Drawings or as needed to comply with system performance requirements.

2. Girts: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes. Form ends of Z-sections with stiffening lips angled 40 to 50 degrees from flange, with minimum 2-1/2-inch- wide flanges.

    a. Depth: As indicated on Drawings or as required to comply with system performance requirements.

3. Eave Struts: Unequal-flange, C-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; to provide adequate backup for metal panels.
4. Flange Bracing: Minimum 2-by-2-by-1/8-inch structural-steel angles or 1-inch- diameter, cold-formed structural tubing to stiffen primary-frame flanges.
5. Sag Bracing: Minimum 1-by-1-by-1/8-inch structural-steel angles.
6. Base or Sill Angles: Manufacturer's standard base angle, minimum 3-by-2-inch, fabricated from zinc-coated (galvanized) steel sheet.
7. Purlin and Girt Clips: Manufacturer's standard clips fabricated from steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
8. Framing for Openings: Channel shapes; fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
9. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.

G. Canopy Framing: Manufacturer's standard structural-framing system, designed to withstand required loads; fabricated from shop-welded, built-up steel plates or structural-steel shapes. Provide frames with attachment plates and splice members, factory drilled for field-bolted assembly.

1. Type: As indicated.

H. Bracing: Provide adjustable wind bracing using any method as follows:

1. Rods: ASTM A36/A36M; ASTM A572/A572M, Grade 50; or ASTM A529/A529M, Grade 50; minimum 1/2-inch- diameter steel; threaded full length or threaded a minimum of 6 inches at each end.
2. Cable: ASTM A475, minimum 1/4-inch- diameter, extra-high-strength grade, Class B, zinc-coated, seven-strand steel; with threaded end anchors.
3. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
4. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
5. Fixed-Base Columns: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
6. Diaphragm Action of Metal Panels: Design metal building to resist wind forces through diaphragm action of metal panels.

I. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.

J. Materials:

1. W-Shapes: ASTM A992/A992M; ASTM A572/A572M, Grade 50 or 55; or ASTM A529/A529M, Grade 50 or 55.
2. Channels, Angles, M-Shapes, and S-Shapes: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55; or ASTM A529/A529M, Grade 50 or 55.
3. Plate and Bar: ASTM A36/A36M; ASTM A572/A572M, Grade 50 or 55; or ASTM A529/A529M, Grade 50 or 55.
4. Steel Pipe: ASTM A53/A53M, Type E or S, Grade B.
5. Cold-Formed Hollow Structural Sections: ASTM A500/A500M, Grade B or C, structural tubing.
6. Structural-Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Structural Steel (SS), Grades 30 through 55, or High-Strength Low-Alloy Steel (HSLAS) or High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F), Grades 45 through 70; or cold-rolled, ASTM A1008/A1008M, Structural Steel (SS), Grades 25 through 80, or HSLAS, Grades 45 through 70.
7. Metallic-Coated Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80, or HSLAS or HSLAS-F, Grades 50 through 80; with G60 coating designation; mill phosphatized.
8. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A755/A755M.

    a. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80, or HSLAS or HSLAS-F, Grades 50 through 80; with G90 coating designation.
    b. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, SS, Grade 50 or 80; with Class AZ50 coating.

9. Joist Girders: Manufactured in accordance with "Standard Specifications for Joist Girders," in SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders"; with steel-angle, top- and bottom-chord members, and end- and top-chord arrangements as indicated on Drawings and required for primary framing.
10. Steel Joists: Manufactured in accordance with "Standard Specifications for Open Web Steel Joists, K-Series," in SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders"; with steel-angle, top- and bottom-chord members, and end- and top-chord arrangements as indicated on Drawings and required for secondary framing.
11. Non-High-Strength Bolts, Nuts, and Washers: ASTM A307, Grade A, carbon-steel, hex-head bolts; ASTM A563/A563M carbon-steel hex nuts; and ASTM F844 plain (flat) steel washers.

    a. Finish: Hot-dip zinc coating, ASTM F2329, Class C.

12. High-Strength Bolts, Nuts, and Washers, Grade A325 (Grade A325M): ASTM F3125/F3125M, Type 1, heavy-hex steel structural bolts; ASTM A563/A563M, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

    a. Finish: Plain.

13. High-Strength Bolts, Nuts, and Washers, Grade A490 (Grade A490M): ASTM F3125/F3125M, Type 1, heavy-hex steel structural bolts or Grade F2280 tension-

control, bolt-nut-washer assemblies with splined ends; ASTM A563/A563M, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.

14. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F3125/F3125M, Grade F1852, Type 1, heavy-hex or roundhead assemblies consisting of steel structural bolts with splined ends; ASTM A563/A563M, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1 hardened carbon-steel washers.

    a. Finish: Mechanically deposited zinc coating, ASTM B695, Class 50, baked-epoxy coated.

15. Unheaded Anchor Rods: ASTM F1554, Grade 36 ASTM A572/A572M, Grade 50 ASTM A36/A36M ASTM A307, Grade A.

    a. Configuration: Straight.
    b. Nuts: ASTM A563/A563M, heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436/F436M, hardened carbon steel.
    e. Finish: Plain.

16. Headed Anchor Rods: ASTM F1554, Grade 36 or ASTM A307, Grade A.

    a. Configuration: Straight.
    b. Nuts: ASTM A563/A563M, heavy-hex carbon steel.
    c. Plate Washers: ASTM A36/A36M carbon steel.
    d. Washers: ASTM F436/F436M, hardened carbon steel.
    e. Finish: Plain.

17. Threaded Rods: ASTM A193/A193M, ASTM A572/A572M, Grade 50, ASTM A36/A36M ASTM A307, Grade A.

    a. Nuts: ASTM A563/A563M, heavy-hex carbon steel.
    b. Washers: ASTM F436/F436M, hardened or ASTM A36/A36M carbon steel.
    c. Finish: Plain.

K. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

1. Clean and prepare in accordance with SSPC-SP2.
2. Coat with manufacturer's standard primer. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil.

    a. Prime secondary framing formed from uncoated steel sheet to a minimum dry film thickness of 0.5 mil on each side.

2.5 METAL ROOF PANELS

A. Solar Reflectance Index:

B. Roof Solar Reflectance: Provide roof panels with one of the following when tested in accordance with CRRC-1:

1. Three-year, aged, solar reflectance of not less than 0.55 and emissivity of not less than 0.75.
2. Three-year, aged, Solar Reflectance Index (SRI) of not less than 64 when calculated in accordance with ASTM E1980.

C. Standing-Seam, Vertical-Rib, Metal Roof Panels: Formed with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.

1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.024-inch nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Exterior Finish: Two-coat fluoropolymer.
b. Color: As selected by Architect from manufacturer's full range.

2. Clips: Two-piece floating to accommodate thermal movement.
3. Joint Type: Mechanically seamed.
4. Panel Coverage: 16 inches.
5. Panel Height: 2 inches.

D. Finishes:

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

2.6 METAL WALL PANELS

A. Exposed-Fastener, Reverse-Rib, Metal Wall Panels: Formed with recessed, trapezoidal major valleys and flat pan between major valleys; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.024-inch nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Exterior Finish: Fluoropolymer.
b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.125 inches.

B. Finishes:

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

~~2.7 THERMAL INSULATION~~

~~A. Faced Metal Building Insulation: ASTM C991, Type II, glass fiber blanket insulation; 0.5 lb/cu. ft. density; 2 inch wide, continuous, vapor tight edge tabs; with a flame spread index of 25 or less.~~

~~B. Unfaced Metal Building Insulation: ASTM C991, Type I, or NAIMA 202, glass fiber blanket insulation; 0.5 lb/cu. ft. density; 2 inch wide, continuous, vapor tight edge tabs; with a flame spread index of 25 or less.~~

~~C. Mineral Fiber Blanket Insulation: ASTM C665, type indicated below; consisting of fibers manufactured from glass, slag wool, or rock wool.~~

~~1. Nonreflective Faced: Type II (blankets with nonreflective membrane covering), Category 1 (membrane is a vapor retarder), Class A (membrane faced surface with a flame spread index of 25 or less).~~
~~2. Reflective Faced: Type III (blankets with reflective membrane covering), Category 1 (membrane is a vapor retarder), Class A (membrane faced surface with a flame spread index of 25 or less).~~
~~3. Unfaced: Type I (blankets without membrane covering), passing ASTM E136 for combustion characteristics.~~

~~D. Faced, Polyisocyanurate Board Insulation: ASTM C1289, Type I (foil facing), Class 2, with maximum flame spread and smoke developed indexes of 75 and 450, respectively, based on tests performed on unfaced core. Provide units tested for interior exposure without an approved thermal barrier.~~

~~E. Retainer Strips: For securing insulation between supports, 0.025 inch nominal thickness, formed, metallic coated steel or PVC retainer clips colored to match insulation facing.~~

~~2.8~~2.7 PERSONNEL DOORS AND FRAMES

A. Swinging Personnel Doors and Frames:

1. As specified in Section 081113 "Hollow Metal Doors and Frames."

~~2.9~~2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same material as metal roof panels.
2. Clips: Manufacturer's standard, formed from steel sheet, designed to withstand negative-load requirements.
3. Cleats: Manufacturer's standard, mechanically seamed cleats formed from steel sheet.
4. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
5. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal roof panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
6. Thermal Spacer Blocks: Where metal panels attach directly to purlins, provide thermal spacer blocks of thickness required to provide 1-inch standoff; fabricated from extruded polystyrene.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same material as metal wall panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or

premolded to match metal wall panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

D. Flashing and Trim: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match adjacent metal panels.

1. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.

E. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- long sections, sized in accordance with manufacturer's written instructions.

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-ft.- long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

H. Materials:

1. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.
2. Fasteners for Metal Roof Panels:

    a. Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with a stainless steel cap or zinc-aluminum-alloy head and EPDM sealing washer.
    b. Self-drilling, Type 410 stainless steel or self-tapping, Type 304 stainless steel or zinc-alloy-steel hex washer head, with EPDM washer under heads of fasteners bearing on weather side of metal panels.

3. Fasteners for Metal Wall Panels:

    a. Self-drilling or self-tapping, zinc-plated, hex-head carbon-steel screws, with EPDM sealing washers bearing on weather side of metal panels.
    b. Self-drilling, Type 410 stainless steel or self-tapping, Type 304 stainless steel or zinc-alloy-steel hex washer head, with EPDM sealing washers bearing on weather side of metal panels.

4. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws with hex washer head.
5. Blind Fasteners: High-strength aluminum or stainless steel rivets.
6. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
7. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.
8. Metal Panel Sealants:

    a. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene-compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape of manufacturer's standard size.
    b. Joint Sealant: ASTM C920; one part elastomeric polyurethane or polysulfide; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended by metal building system manufacturer.

~~2.10~~2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members to be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to indicated size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

1. Make shop connections by welding or by using high-strength bolts.
2. Join flanges to webs of built-up members by a continuous, submerged arc-welding process.
3. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin web or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
4. Weld clips to frames for attaching secondary framing if applicable, or punch for bolts.
5. Shop Priming: Prepare surfaces for shop priming in accordance with SSPC-SP 2. Shop prime primary framing with specified primer after fabrication.

D. Secondary Framing: Shop fabricate framing components to indicated size and section by roll forming or break forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

1. Make shop connections by welding or by using non-high-strength bolts.
2. Shop Priming: Prepare uncoated surfaces for shop priming in accordance with SSPC-SP 2. Shop prime uncoated secondary framing with specified primer after fabrication.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.

~~2.11~~2.10 SOURCE QUALITY CONTROL

A. Special Inspection: Owner will engage a qualified special inspector to perform source quality control inspections and to submit reports.

1. Accredited Manufacturers: Special inspections will not be required if fabrication is performed by an IAS AC472-accredited manufacturer approved by authorities having jurisdiction to perform such Work without special inspection.

a. After fabrication, submit copy of certificate of compliance to authorities having jurisdiction, certifying that Work was performed in accordance with Contract requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with erector present, for compliance with requirements and metal building system manufacturer's tolerances.

1. Engage land surveyor to perform surveying.

C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and prepare surfaces to be painted in accordance with manufacturer's written instructions for each particular substrate condition.

B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system in accordance with manufacturer's written instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, in accordance with AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt type and joint type specified.

    a. Joint Type: Snug tightened or pretensioned as required by manufacturer.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists and Joist Girders: Install joists, girders, and accessories plumb, square, and true to line; securely fasten to supporting construction in accordance with SJI's "Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Joint Installation:

    a. Bolt joists to supporting steel framework using carbon-steel bolts unless otherwise indicated.
    b. Bolt joists to supporting steel framework using high-strength structural bolts unless otherwise indicated. Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for high-strength structural bolt installation and tightening requirements.
    c. Weld joist seats to supporting steel framework.

5. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.4 INSTALLATION OF METAL PANELS, GENERAL

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate in

accordance with equipment manufacturer's written instructions and to comply with details shown.

C. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.

1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.

D. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

E. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

F. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

G. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types used in tested assemblies meeting "Performance Requirements" Article.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.5 INSTALLATION OF METAL ROOF PANELS

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge and hip caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint, at location and spacing and with fasteners recommended by manufacturer.

1. Install clips to supports with self-drilling or self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so that clip, metal roof panel, and factory-applied sealant are completely engaged.
5. Rigidly fasten eave end of metal roof panels and allow ridge end free movement for thermal expansion and contraction. Predrill panels for fasteners.
6. Provide metal closures at ridges, rake edges rake walls and each side of ridge and hip caps.

C. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

D. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

E. Metal Roof Panel Installation Tolerances: Shim and align metal roof panels within installed tolerance of 1/4 inch in 20 ft. on slope and location lines and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 INSTALLATION OF METAL WALL PANELS

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer using sealants and gaskets as required for a watertight installation.

C. Insulated Metal Wall Panels: Install insulated metal wall panels on exterior side of girts. Attach panels to supports at each panel joint using concealed clip and fasteners at maximum 42 inches o.c., spaced not more than manufacturer's written instruction. Fully engage tongue and groove of adjacent insulated metal wall panels.

1. Install clips to supports with self-tapping fasteners.
2. Apply continuous ribbon of sealant to panel joint on concealed side of insulated metal wall panels as vapor seal; apply sealant to panel joint on exposed side of panels as weather seal.

D. Installation Tolerances: Shim and align metal wall panels within installed tolerance of 1/4 inch in 20 ft., noncumulative; level, plumb, and on location lines; and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 INSTALLATION OF TRANSLUCENT PANELS

A. Translucent Panels: Attach translucent panels to structural framing with fasteners in accordance with manufacturer's written instructions. Install panels perpendicular to supports unless

otherwise indicated. Anchor translucent panels securely in place, with provisions for thermal and structural movement.

1. Provide end laps of not less than 6 inches and side laps of not less than 1-1/2-inch corrugations for metal roof panels.
2. Provide end laps of not less than 4 inches and side laps of not less than 1-1/2-inch corrugations for metal wall panels.
3. Align horizontal laps with adjacent metal panels.
4. Seal intermediate end laps and side laps of translucent panels with translucent mastic.

3.8 INSTALLATION OF METAL SOFFIT PANELS

A. Provide metal soffit panels the full width of soffits. Install panels perpendicular to support framing.

B. Flash and seal metal soffit panels with weather closures where panels meet walls and at perimeter of all openings.

~~3.9 INSTALLATION OF THERMAL INSULATION~~

~~A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, in accordance with manufacturer's written instructions.~~

~~1. Set vapor retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.~~
~~2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.~~
~~3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.~~
~~4. Install blankets straight and true in one-piece lengths. Install vapor retarder over insulation, with both sets of facing tabs sealed, to provide a complete vapor retarder.~~

~~B. Blanket Roof Insulation: Comply with the following installation method:~~

~~1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.~~
~~2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.~~
~~3. Over-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Install layer of filler insulation over first layer to fill space formed by metal roof panel standoffs. Hold in place by panels fastened to standoffs.~~

~~a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.~~

~~4. Two-Layers-between-Purlin-with-Spacer-Block Installation: Extend insulation and vapor retarder between purlins. Carry vapor retarder facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Install layer of filler insulation over first layer to fill space between purlins formed by thermal spacer blocks. Hold in place with bands and crossbands below insulation.~~

~~a. Thermal Spacer Blocks: Where metal roof panels attach directly to purlins, install thermal spacer blocks.~~

~~5. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.~~

~~C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.~~

~~1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.~~
~~2. Sound-Absorption Insulation: Where sound-absorption requirement is indicated for metal liner panels, cover insulation with polyethylene film and provide inserts of wire mesh to form acoustical spacer grid.~~

~~D. Board Wall Insulation: Extend board insulation in thickness indicated to cover entire wall. Hold in place by metal wall panels fastened to secondary framing. Comply with manufacturers' written instructions.~~

~~1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.~~

~~3.10~~3.9 INSTALLATION OF DOORS AND FRAMES

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place in accordance with manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames in accordance with NAAMM-HMMA 840. Fit non-fire-rated doors accurately in their respective frames, with the following clearances:

1. Between Doors and Frames at Jambs and Head: 1/8 inch.
2. Between Edges of Pairs of Doors: 1/8 inch.
3. At Door Sills with Threshold: 3/8 inch.
4. At Door Sills without Threshold: 3/4 inch.
5. At fire-rated openings, install frames in accordance with, and doors with clearances specified in, NFPA 80.

C. Sliding Service Doors: Bolt support angles to opening head members through factory-punched holes. Bolt door tracks to support angles at maximum 24 inches o.c. Set doors and operating

equipment with necessary hardware, jamb and head mold stops, continuous hood flashing, anchors, inserts, hangers, and equipment supports.

D. Field Glazing: Comply with installation requirements in Section 088000 "Glazing."

E. Door Hardware:

1. Install surface-mounted items after finishes have been completed at heights indicated in DHI's TDH-009.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
4. Set thresholds for exterior doors in full bed of sealant complying with requirements for concealed mastics specified in Section 079200 "Joint Sealants."

~~3.11~~3.10 INSTALLATION OF WINDOWS

A. General: Install windows plumb, rigid, properly aligned, without warp or rack of frames or sash, and securely fasten in place in accordance with manufacturer's written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each window frame with elastomeric sealant used for metal wall panels.

1. Separate dissimilar materials from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in AAMA/WDMA/CSA 101/I.S.2/A440.

B. Set sill members in bed of sealant or with gaskets, for weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Mount screens directly to frames with tapped screw clips.

~~3.12~~3.11 INSTALLATION OF ACCESSORIES

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 ft. with no joints allowed within 24 inches of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Circular Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Mount ventilators on flat level base. Install preformed filler strips at base to seal ventilator to metal roof panels.

F. Continuous Roof Ventilators: Set ventilators complete with necessary hardware, anchors, dampers, weather guards, rain caps, and equipment supports. Join sections with splice plates and end-cap skirt assemblies where required to achieve indicated length. Install preformed filler strips at base to seal ventilator to metal roof panels.

G. Louvers: Locate and place louver units level, plumb, and at indicated alignment with adjacent work.

1. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
2. Provide perimeter reveals and openings of uniform width for sealants and joint fillers.
3. Protect galvanized- and nonferrous-metal surfaces from corrosion or galvanic action by applying a heavy coating of corrosion-resistant paint on surfaces that will be in contact with concrete, masonry, or dissimilar metals.
4. Install concealed gaskets, flashings, joint fillers~~, and insulation~~ as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 "Joint Sealants" for sealants applied during louver installation.

H. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

~~3.13~~3.12 FIELD QUALITY CONTROL

A. Special Inspections: Owner may engage the services of a qualified special inspector to perform field quality control special inspections and to submit reports.

B. Prepare test and inspection reports.

~~3.14~~3.13 ADJUSTING

A. Doors: After completing installation, test and adjust doors to operate easily, free of warp, twist, or distortion.

B. Door Hardware: Adjust and check each operating item of door hardware and each door to ensure proper operation and function of every unit. Replace units that cannot be adjusted to operate as intended.

C. Windows: Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and at weather stripping to ensure smooth operation and weathertight closure. Lubricate hardware and moving parts.

D. Roof Ventilators and Adjustable Louvers: After completing installation, including work by other trades, lubricate, test, and adjust units to operate easily, free of warp, twist, or distortion as needed to provide fully functioning units.

1. Adjust louver blades to be weathertight when in closed position.

~~3.15~~3.14 CLEANING AND PROTECTION

A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint in accordance with ASTM A780/A780M and manufacturer's written instructions.

B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

C. Touchup Painting:

1. After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.

a. Clean and prepare surfaces by SSPC-SP 2 or SSPC-SP 3.

b. Apply a compatible primer of same type as shop primer used on adjacent surfaces.

2. Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

D. Metal Panels: Remove temporary protective coverings and strippable films, if any, as metal panels are installed. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

1. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

E. Doors and Frames: Immediately after installation, sand rusted or damaged areas of prime coat until smooth and apply touchup of compatible air-drying primer.

1. Immediately before final inspection, remove protective wrappings from doors and frames.

F. Windows: Clean metal surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances. Clean factory-glazed glass immediately after installing windows.

G. Louvers: Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.

1. Restore louvers damaged during installation and construction period so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.

a. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 133419

SECTION 133423.01 - PREFABRICATED OBSERVATION TOWER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes prefabricated steel observation tower for sporting events.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for observation tower.

B. Shop Drawings: For observation tower. Include plans, elevations, sections, details, and attachments to other work.

1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Samples for Initial Selection: For observation tower with factory-applied color finishes.

D. Samples for Verification: For exposed finishes, in manufacturer's standard sizes.

E. Delegated-Design Submittal: For observation tower indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

F. Welding certificates.

G. Maintenance Data: For observation tower to include in maintenance manuals.

H. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

3. AWS D1.3, "Structural Welding Code - Sheet Steel."

B. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other structural data by a qualified professional engineer.

C. Professional Engineer Qualifications for Delegated Design: 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 cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.

D. Preinstallation Conference: Conduct conference at Project site.

1.5 COORDINATION

A. Coordinate installation of anchorages for observation tower. 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.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design observation tower.

B. Structural Performance: Observation tower shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

1. Refer to Delegated Design Engineering Drawings.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:

1. Sheet: ASTM B 209.
2. Extruded Shapes: ASTM B 221.

3. Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T4 or Alloy 6061-T6.

B. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, commercial quality, G90 coating designation; mill phosphatized.

C. Steel Structural Tubing: ASTM A 500, Grade B.

D. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

E. Zinc-Coated (Galvanized) Steel: Hot-dip galvanized according to ASTM A 123/A 123M.

F. Plywood: DOC PS 1, Exterior grade.

2.3 PREFABRICATED OBSERVATION TOWER

A. basis-of-Design Product: Subject to compliance with requirements, provide product indicated, or comparable, Architect approved product by one of the following:

1. Porta-King. (Basis-of-Design)

a. ~~Sports/Band Filming Viewing Towers~~Porta-King Field Tower, 24 feet high.

2. Whitley Manufacturing.
3. Southern Bleachers.
4. Austin Mohawk.

B. Structural Framework: Fabricated from structural steel. Connect the framework by welding. Hot dip galvanize after fabrication per ASTM A 123.

C. Product Standard Features:

a. Heavy-duty, galvanized structural steel components to create an incredibly rigid framework of support.
b. Fully welded framework ~~shipped in 32 foot high sections~~.
c. Desired tower height is created by stacking individual factory assembled modules.
d. Galvanized plank grate decking for traction.
e. Modules include factory installed internal galley stairs.
f. Single or multi-tiered observation platforms can be added depending on application requirements.
g. Full perimeter public access guard rail is supplied for added safety on all observation decks.
h. Factory welded brackets for mounting speakers
i. Closed end gable or single slope flat roofs.
j. Security Doors: Lockable to prevent unauthorized access.
k. Foundation design included.

2.4 FABRICATION

A. Fabricate observation tower completely in factory.

B. Preglaze windows and doors at factory.

C. Prewire observation tower at factory, ready for connection to service at Project site.

2.5 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.6 ALUMINUM FINISHES

A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: As selected by Architect from manufacturer's standard color range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install observation tower according to manufacturer's written instructions.

B. Set observation tower plumb and aligned. Level baseplates true to plane with full bearing on structure.

C. Fasten observation tower securely.

D. Connect electrical power service to power distribution system according to requirements specified in Division 26 Sections.

3.3 ADJUSTING

A. Adjust doors, operable windows, and hardware to operate smoothly, easily, properly, and without binding. Confirm that locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

C. After completing installation, inspect exposed finishes and repair damaged finishes.

END OF SECTION 133423.01

SECTION 265668 - EXTERIOR ATHLETIC LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes lighting for the following outdoor sports venues:
1. Baseball fields.
2. Softball fields.
3. Football fields.
4. Outdoor tennis courts.
5. Practice fields

1.3 DEFINITIONS

A. Coefficient of Variation (CV): A statistical measure of the weighted average of all relevant illumination values for the playing area, expressed as the ratio of the standard deviation for all illuminance values to the mean illuminance value.

B. Fixture: See "Luminaire."

C. Illuminance: The metric most commonly used to evaluate lighting systems. It is the density of luminous flux, or flow of light, reaching a surface divided by the area of that surface.
1. Horizontal Illuminance: Measurement in foot-candles, on a horizontal surface 36 inches above ground unless otherwise indicated.
2. Target Illuminance: Average maintained illuminance level, calculated by multiplying initial illuminance by LLF.
3. Vertical Illuminance: Measurement in foot-candles, in two directions on a vertical surface, at an elevation coinciding with plane height of horizontal measurements.

D. LC: Lighting Certified.

E. Light-Loss Factor (LLF): A factor used in calculating the level of illumination after a given period of time and under given conditions. It takes into account temperature, dirt accumulation on the luminaire, lamp depreciation, maintenance procedures, and atmospheric conditions. An LLF includes a recoverable light-loss factor.

F. Luminaire: A complete lighting unit, internally lighted exit sign, or emergency lighting unit. Luminaires include lamps and the parts required to distribute light, position and protect lamps, and connect lamps to power supply. Note that "fixture" and "luminaire" may be used interchangeably and the "IES Lighting Handbook" uses "luminaire" over "fixture."

G. Pole: Luminaire support structure, including tower used for large area illumination.

H. Uniformity Gradient (UG): The rate of change of illuminance on the playing field, expressed as a ratio between the illuminances of adjacent measuring points on a uniform grid.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of lighting product.
1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description and dimensions of the luminaires.
4. Driver, including BF, UL listing and recognition, ANSI certification, and Energy Independence and Security Act of 2007 compliance.
5. Lamps, including life, output (lumens, CCT, and CRI), and energy-efficiency data.
6. Photometric data and adjustment factors based on laboratory tests, complying with IES "Lighting Measurements Testing and Calculation Guides," of each lighting luminaire type. The adjustment factors shall be for lamps, drivers, and accessories identical to those indicated for the luminaire as applied in this Project.
    a. Manufacturer Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.
7. Photoelectric relays.
8. Means of attaching luminaires to supports and indication that attachment is suitable for components involved.

B. Product Schedule: For luminaires. Use same designations indicated on Drawings.

C. Delegated-Design Submittal: For exterior athletic lighting indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
1. Drawings and specifications for construction of lighting system.
2. Manufacturer's determination of LLF used in design calculations.
3. Wind Load requirements and design calculations.
4. Lighting system design calculations for the following:
    a. Target illuminance.
    b. Point calculations of horizontal and vertical illuminance, CV, and UG at minimum grid size and area.
    c. Point calculations of horizontal and vertical illuminance in indicated areas of concern for spill light, including at a minimum the property line.
    d. Calculations of source intensity of luminaires observed at eye level from properties near the playing fields.
5. Electrical system design calculations for the following:
    a. Short-circuit current calculations for rating of panelboards.
    b. Total connected and estimated peak-demand electrical load, in kilowatts, of lighting system.
    c. Capacity of service required to supply lighting system.
6. Wiring requirements, including required conductors, cables, and wiring methods.
7. Structural analysis data and calculations used for pole selection.
    a. Manufacturer Wind-Load Strength Certification: Submit certification that selected total support system, including poles, complies with AASHTO LTS-6-M for location of Project.
    b. Minimum wind speed calculation: 115 MPH.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer, manufacturer, professional engineer, and testing laboratory providing photometric data for luminaires.

B. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Product Certificates:
1. For each type of driver-controlled luminaire, from manufacturer.
2. For support structures, including brackets, arms, appurtenances, bases, anchorages, and foundations, from manufacturer.

D. Field quality-control reports.

E. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires to include in operation and maintenance manuals.
1. Provide a list of all luminaire types used on Project. Use ANSI and manufacturers' codes.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Manufacturer Qualifications: Manufacturer's responsibilities include fabricating sports lighting and providing professional engineering services needed to assume engineering responsibility.
1. Engineering Responsibility: Preparation of delegated-design submittals and comprehensive engineering analysis by a qualified professional engineer.
a. Analysis shall include pole design (structural, bases, poles, masts, etc.)
b. Photometric layout.
c. Feeder and branch circuit analysis.
d. Fixture counts, types, luminaires, housings, drivers, etc.

C. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturers' laboratory accredited under the NVLAP for Energy Efficient Lighting Products.

D. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M.
2. AWS D1.2/D1.2M.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of luminaires, and luminaire alignment products and to correct misalignment that occurs subsequent to successful acceptance tests. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, and unauthorized repairs and alterations from special warranty coverage.
   1. Luminaire Warranty: Luminaire and luminaire assembly shall be free from defects in materials and workmanship for a period of five years from date of Substantial Completion.
   2. Alignment Warranty: Accuracy of alignment of luminaires shall remain within specified illuminance uniformity ratios for a period of five years from date of successful completion of acceptance tests.
      a. Realign luminaires that become misaligned during the warranty period.
      b. Replace alignment products that fail within the warranty period.
      c. Verify successful realignment of luminaires by retesting as specified in "Field Quality Control" Article.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Facility Type: High school.

B. Illumination Criteria:
   1. Minimum average target illuminance level for each lighted area for each sports venue and for the indicated class of play according to IES RP-6.
   2. CV and maximum-to-minimum uniformity ratios for each lighted area equal to or less than those listed in IES RP-6 for the indicated class of play.
   3. UG levels within each lighted area equal to or less than those listed in IES RP-6 for the indicated speed of sport.

C. Illumination Calculations: Computer-analyzed point method complying with IES RP-6 to optimize selection, location, and aiming of luminaires.
   1. Grid Pattern Dimensions: For playing areas of each sport and areas of concern for spill-light control, correlate and reference calculated parameters to the grid areas. Each grid point represents the center of the grid area defined by the length and width of the grid spacing.
   2. Spill-Light Control: Minimize spill light for each playing area on adjacent and nearby areas.
      a. For areas indicated on Drawings as "spill-light critical," limit the level of illuminance directed into the area from any luminaire or group of luminaires, and measured 36 inches above grade to the following:

1) Maximum Horizontal Illuminance: 0.5 fc.
2) Maximum Vertical Illuminance from the Direction of the Greatest Contribution of Light: 1.0 fc.

b. Calculate the horizontal and vertical illuminance due to spill light for points spaced 20 feet apart in areas indicated on Drawings as "spill-light critical," to ensure that design complies with the above limits.

3. Glare Control: Design illumination for each playing area to minimize direct glare in adjacent and nearby areas.
   a. Design source intensity of luminaires that may be observed at an elevation of 60 inches above finished grade from designated "spill-light critical" areas to be less than 12,000 candela when so observed.
4. Determine LLF according to IES RP-6 and manufacturer's test data.
   a. Use LLD at 100 percent of rated lamp life. LLF shall be applied to initial illumination to ensure that target illumination is achieved at 100 percent of lamp life and shall include consideration of field factor.
   b. A maximum of .95 LLF shall be applied even where IES RP-6 provides for a higher LLF.
5. Luminaire-Mounting Height: Comply with IES RP-6, with consideration for requirements to minimize spill light and glare.
6. Critical spill areas are at a minimum the adjacent property line. Maximum Horizontal and Maximum Vertical Illuminance shall be observed.

D. Baseball Fields:
1. IES RP-6: Class of Play III.
2. Speed of Sport: Moderate.
3. Grid Pattern Dimensions: 30 by 30 feet.

E. Softball Fields:
1. IES RP-6: Class of Play III.
2. Speed of Sport: Moderate.
3. Grid Pattern Dimensions: 20 by 20 feet.

F. Football Fields:
1. IES RP-6: Class of Play II.
2. Speed of Sport: Fast.
3. Grid Pattern Dimensions: 30 by 30 feet.

G. Football Stadium/Bleacher:
1. 1 fc average across the bleacher area and immediate egress path.

H. Outdoor Tennis Courts:
1. IES RP-6: Class of Play III.
2. Speed of Sport: Moderate.
3. Grid Pattern Dimensions: 10 by 10 feet.

I. Practice/Recreational Fields
1. ISS RP-6: Class of Play IV
2. Speed of Sport: Fast
3. Grid Pattern Dimensions:30 by 30 feet.

J. Egress Lighting: In case of power failure, provide a minimum of 1.0-fc illumination, measured at grade in spectator and spectator egress areas.
1. Duration of emergency illumination shall be not less than 90 minutes.

K. Lighting Control: Manual, low voltage, or digital; providing the following functions, integrated into a single control station, with multiple subcontrol stations as indicated:
1. Control Station: Key-operated master switch, manual push-button controls, and system status indicator lights. Test switch of egress lighting system.

L. Electric Power Distribution Requirements:
1. Electric Power: See plans.
a.
b. Balance load between phases. Install wiring to balance three phases at each support structure.
c. Include required overcurrent protective devices and individual lighting control for each sports field or venue.
2. Maximum Total Voltage Drop from Source to Load: 5 percent, including voltage drops in branch circuit, subfeeder, and feeder.

M. Seismic Performance: Luminaires, drivers, and support structures shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

2.2 LUMINAIRE SYSTEM

A. Luminaires: Complying with requirements described in Section 265619 "LED Exterior Lighting."
1. Listed and labeled, by an NRTL acceptable to authorities having jurisdiction, for compliance with UL 1598 for installation in wet locations.
2. Exposed Hardware: Stainless-steel latches, fasteners, and hinges.
3. Spill-Light Control Devices: Internal louvers and external baffles furnished by manufacturer and designed for secure attachment to specific luminaire.

B. Driver Mounting: At location of associated luminaires unless otherwise indicated.

2.3 SUPPORT STRUCTURES

A. Support Structures: Steel or Concrete poles and other support structures, brackets, arms, appurtenances, bases, anchorages and foundations as complying with requirements described in Section 265613 "Lighting Poles and Standards." and as recommended by the supplying sports lighting manufacturer.
1. Provide safety cages (platform), safety cables for tethering, and climbing steps.
2. Pole basis of design is concrete.

2.4 POWER DISTRIBUTION AND CONTROL

A. Wiring Method for Feeders, Subfeeders, Branch Circuits, and Control Wiring: Underground nonmetallic raceway; No. 10 AWG minimum conductor size for power wiring.

B. Overhead-, pole-, or structure-supported wiring and transformers are not permitted.

C. Electrical Enclosures Exposed to Weather: NEMA 250, Type 3R enclosure constructed from stainless steel corrosion-resistant material, with hinged doors fitted with padlock hasps or lockable latches.

D. Pole Wiring: For football stadiums, Provide hard wired, unspliced conductors for full pole height. "Quick wiring" and intermediate connectors are not acceptable.

E. Support down cables from luminaires at top of pole to control box are well supported, without strain on connections.

F. Provide terminal block connections at top of down cables. Pin-type connections are not acceptable.

2.5 SURGE PROTECTION

A. Surge Protection: Comply with requirements in Section 264313 "Surge Protection for Low-Voltage Electrical Power Circuits" and include surge suppressors with the following requirements:
1. Panelboard type.
2. Nonmodular, with digital indicator lights.
3. Peak Single-Impulse Surge Current Rating: 20 kA per phase.

2.6 POLE AND BASE PROTECTION

A. Pole Pads: Wraparound pad, with 4 inches of extra-firm polyfoam, 360-degree coverage of ground-mounted poles and supports, continuous hook-and-loop fastening; and not less than 72 inches high.

2.7 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire electrical and communications conduit to verify actual locations of connections before pole or luminaire installation.

C. Examine foundations for suitable conditions where luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with NECA 1.

B. Wiring Method: Install cables in raceways, except when cables are installed within boxes and poles. Conceal raceways and cables.
   1. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and 260533 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

C. Coordination layout and installation of luminaires with other construction.

D. Use web fabric slings (not chain or cable) to raise and set structural members. Protect equipment during installation to prevent corrosion.

E. Install poles and other structural units level, plumb, and square.

F. Install luminaires at height and aiming angle as indicated on Drawings.

G. Except for embedded structural members, grout void between pole base and foundation. Use nonshrinking or expanding concrete grout firmly packed in entire void space. Use a short piece of 1/2-inch-diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole. Nonshrink grout is specified in Section 055000 "Metal Fabrications."

H. Install pole pads at all poles inside playing field boundaries and when located within 20 feet of the field boundary.

I. Extend cast-in-place bolted base foundations 36 inches above grade, minimum.

J. Install protective pipe bollards on three sides of each embedded pole installed in paved areas. See Section 055000 "Metal Fabrications" for pipe bollards.

K. Install controls and driver housings in cabinets mounted on support structure at least 10 feet above finished grade.

3.3 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Electrical contractor will engage a qualified testing agency to perform tests and inspections.

B. Coordinate with contractor’s testing agency which will perform the following tests and inspections:
   1. After installing sports lighting system and after electrical circuits have been energized, perform proof-of-performance field measurements and analysis for compliance with requirements.

2. Playing and Other Designated Areas: Make field measurements at intersections of grids, dimensioned and located as specified in "Performance Requirements" Article and as described below:
   a. Baseball Fields: Measure at least 25 points of the infield and 87 points of the outfield. Extend the grid 15 feet outside the foul lines, extending to outfield boundary or fence.
   b. Softball Fields: Measure at least 16 points of the infield and 48 points of the outfield. Extend the grid 15 feet outside the foul lines, extending to outfield boundary.
   c. Football Fields: Lighted area is 180 by 360 feet. Measure at least 91 points.
   d. Tennis Courts: Measure at least 30 points for a double court.
3. Make field measurements at established test points in areas of concern for spill light and glare.
4. Perform analysis to demonstrate correlation of field measurements with specified illumination quality and quantity values and corresponding computer-generated values that were submitted with engineered design documents. Submit a report of the analysis. For computer-generated values, use manufacturer's LED lumens that are adjusted to LED age at time of field testing.

C. Correction of Illumination Deficiencies for Playing Areas: Make corrections to illumination quality or quantity, measured in field quality-control tests, that varies from specified illumination criteria by plus or minus 10 percent.
1. Add or replace luminaires; change mounting height and aiming; or install louvers, shields, or baffles.
2. If luminaires are added or mounting height is changed, revise aiming and recalculate and modify or replace support structures if indicated.
3. Do not replace luminaires with units of higher or lower wattage without Architect's approval.
4. Retest as specified above after repairs, adjustments, or replacements are made.
5. Report results in writing.

D. Correction of Excessive Illumination in Spill-Light-Critical Areas: If measurements indicate that specified limits for spill light are exceeded, make corrections to illumination quantity, measured in field quality-control tests, that reduce levels to within specified maximum values.
1. Replace luminaires; change mounting heights and revise aiming; or install louvers, shields, or baffles.
2. Obtain Architect's approval to replace luminaires with units of higher or lower wattage.
3. If mounting height is changed, revise aiming and recalculate and modify or replace support structures if indicated.
4. Retest as specified above after repairs, adjustments, or replacements are made.
5. Report results in writing.

E. Sports lighting will be considered defective if it does not pass tests and inspections.

F. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust luminaires and supports to maintain orientation and aiming as recommended by manufacturer.

END OF SECTION 265668