
PROJECT MANUAL

**OLD WELDING SHOP
RENOVATION**



1410 HWY 304 EAST
POCAHONTAS, ARKANSAS 72455

PROJECT NUMBER: 2503
JUNE 12, 2025



**SECTION 00 0101
PROJECT TITLE PAGE**

PROJECT MANUAL FOR:

**BLACK RIVER TECHNICAL COLLEGE
OLD WELDING SHOP RENOVATION
1410 HIGHWAY 304 EAST
POCAHONTAS, AR 72455**

**OWNER:
BLACK RIVER TECHNICAL COLLEGE
1410 HIGHWAY 304 EAST
POCAHONTAS, ARKANSAS 72455**

**ARCHITECT:
STEILING ARCHITECTURE
2912 LONGVIEW DR.
JONESBORO, AR 72401**

DATE: JUNE 12, 2025

ARCHITECT'S PROJECT NUMBER: 2503

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SECTION 00 0107
SEALS PAGE

THE ARCHITECT-OF-RECORD FOR:

BLACK RIVER TECHNICAL COLLEGE
1410 HWY 304 EAST
POCAHONTAS, AR 72455

OLD WELDING SHOP RENOVATION

SPECIFICATION DIVISIONS 1 THROUGH 14 IS:



"I, HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED BY ME OR UNDER MY SUPERVISION. I FURTHER CERTIFY, THAT TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS ARE AS REQUIRED BY LAW AND ARE IN COMPLIANCE WITH THE ARKANSAS FIRE PREVENTION CODE FOR THE STATE OF ARKANSAS."

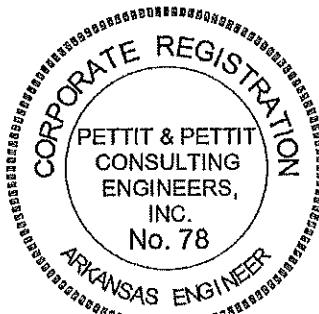
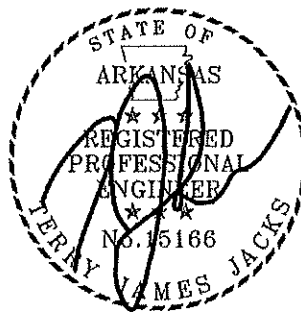
A handwritten signature in blue ink, reading "Anthony B. Steiling", is written over a solid horizontal line.

END OF SEALS PAGE

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The Engineer of Record for Divisions 22 and 23 of the Specifications for the Black Rock Technical College Old Welding Shop Renovation, Pocahontas, Arkansas, (P&P Job No. 25-047) is:

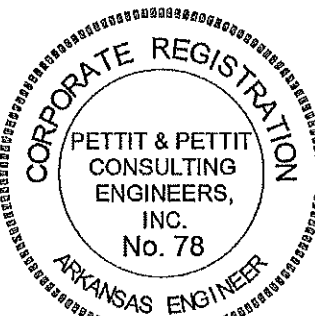
Date 6/12/25



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CONSULTING ENGINEERS, INC.

The Engineer of Record for Divisions 26 of the Specifications for the Black Rock Technical College Old Welding Shop Renovation, Pocahontas, Arkansas, (P&P Job No. 25-047) is:

6-12-25
Date



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PETTIT & PETTIT
CONSULTING ENGINEERS, INC.

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END OF SECTION

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**SECTION 00 1100
INVITATION FOR BIDS**

PART 1 GENERAL

1.01 BRTC POCAHONTAS OLD WELDING SHOP RENOVATION.

- A. Black River Technical College is requesting SEALED bids from Qualified Licensed General Contractors for the furnishing of materials, labor, equipment, tools, accessories, and supervision necessary for completing the above referenced project.
- B. SEALED Bids for the construction of BRTC Pocahontas Old Welding Shop Renovation will be received by Steiling Architecture on behalf of Black River Technical College, hereinafter termed Owner, until **2:00 p.m. local time, July 1, 2025**, in the Business Technology Center Large Conference Room (entrance on east side of building) at Black River Technical Center, located at 1410 Hwy 305 East, Pocahontas, Arkansas, 72455 where the Bids will be opened and read aloud. Bidders are invited to attend. All Bids will be taken under advisement for review.
- C. Bids shall be submitted on the form provided by the Architect, and are to be delivered in a sealed opaque envelope clearly identifying the Project Name, Bidder's name, Bidder's address, and Bidder's current Arkansas Contractor's license number on the front. Bids may be delivered to the Bid opening location, or be mailed or shipped to: Attn: Rhonda Stone, Black River Technical College, P.O. Box 468, Pocahontas, AR 72455. **If mailed or shipped, Bids must be received by 10:00 a.m. on date of opening.** Bids not received for opening at Bid time and date listed above will not be accepted and will be returned unopened.
- D. Bidder must be properly licensed as a current General Contractor by the State of Arkansas at the time of Bid Opening.
- E. Bidders are to comply with Section 001150 - Supplementary Invitation for Bids as found in the Contract Documents.
- F. Bids will be based on a single lump sum basis for entire project.
- G. The United States Department of Labor Prevailing Wage Determination (Davis Bacon Wage Determination) applies to this project.
- H. BASE BID PROPOSAL:
 - 1. Complete demolition of designated portion of existing metal building with wood framed roof system, except for existing concrete floor slab to remain.
 - 2. Demolition of metal roof and wall panels back to existing red-iron building framing on remainder of the building. Includes demolition of overhead and walk doors.
 - 3. Construct new exterior wall to enclose north side of existing building as described on bid documents.
 - 4. Provide and install new prefinished metal roof panels and wall panels on existing building frame / subframe. Includes all new trims, fascias, gutters, downspouts accessories, etc. in standard color-group 2. Includes new overhead doors, walk-thru doors, frames and trim.
- I. ALTERNATES:
 - 1. Refer to Section 00 43 23 for deductive alternate pricing required this Project.
- J. Bid Documents may be examined at the offices of:
 - 1. Steiling Architecture, 2912 Longview Drive, Jonesboro, AR 72401, 870-933-6993
 - 2. Jonesboro Blueprint Co., Inc., 222 S. Madison St., Jonesboro, AR 72401, 870-932-4349
 - 3. Southern Reprographics, Inc., 901 W. 7th St., Little Rock, AR 72201, 501-372-4011
- K. The Contract Documents may be obtained as follows:
 - 1. Contract Documents in hard copy and/or electronic (pdf) format may be purchased (non refundable) from Jonesboro Blueprint Co., or Southern Reprographics at the fair market value of printing services. Those purchasing Contract Documents are responsible for the cost of shipping and handling, if necessary.
 - 2. For the mutual protection of the Owner, Contractor, and Architect, no partial sets of Contract Documents will be issued, in either hard copy or electronic format.

- L. A Pre-Bid conference will NOT be held prior to bid opening.
- M. Bid security in the form of a Bid Bond, Cashiers or Certified Check, in an amount equal to 5% of the Bid submitted, and payable to Black River Technical College, must accompany each Bid as a guarantee that, if awarded the contract, the bidder will promptly enter into a contract and execute such bonds as may be required.
- N. Performance and Payment Bond, equal to the Amount of the Contract, will be required of the bidder awarded the Contract.
- O. The Bidder awarded the contract will be required to submit Proof of Commercial Liability Insurance.
- P. All bidders must conform to the requirements of the Arkansas Contractor's Licensing Board.
- Q. No bidder may withdraw his Bid within thirty (30) days after the actual date of the opening thereof.
- R. The Owner reserves the right to reject any or all Bids, and waive any formalities in Bids received, not bound by Arkansas statutes. Price alone may not be the determining factor. Award will be based upon those considerations which are in the best interest of the Owner, and will be made to the responsive, responsible Bidder whose bid is judged to be the most effective for the requirements and specifications stated in the Invitation for Bids. Proposals which fail to comply fully with any provision of the Bid Documents will be considered invalid and will not receive consideration. Proposals shall be addressed to the undersigned:

Martin Eggensperger, President
Black River Technical College
1410 Hwy 304 East
Pocahontas, Arkansas 72455

**SECTION 00 1150
SUPPLEMENTARY INVITATION FOR BIDS**

SECTION I: GENERAL INSTRUCTIONS, TERMS AND CONDITIONS

1.01 THESE GENERAL INSTRUCTIONS, TERMS AND CONDITIONS AND ANY SPECIAL TERMS AND CONDITIONS BECOME PART OF ANY CONTRACT ENTERED INTO IN THE EVENT ANY PART OR ALL OF THE BID IS ACCEPTED BY THE OWNER. ANY SPECIAL TERMS AND CONDITIONS INCLUDED IN THE INVITATION FOR BIDS OVERRIDE THESE GENERAL INSTRUCTIONS, TERMS AND CONDITIONS.

1.02 DEFINITION OF TERMS:

- A. IFB shall mean Invitation for Bids.
- B. The words vendor, bidder, offerer, company, proposer and contractor may be used synonymously in this document.
- C. The terms "District" or "Owner" are used interchangeably and refer to the Owner.

1.03 SUBMISSION OF BID:

- A. Bids must be submitted to this office using the forms included on or before the date and time specified for bid opening. Each bid should be placed in a separate envelope completely and properly identified; reflecting bid number, bid title and bid opening date/time. Late bids will not be considered under any circumstances.
- B. Failure to sign the bid may result in disqualification. The person signing the bid should show title or authority to bind his/her firm to a contract. Signature must be in ink. Bid must be completed in ink or typed.

1.04 CONFLICT OF INTEREST:

- A. By submitting a bid, the contractor represents and warrants that no director, board member or employee of the District is in any manner interested directly or indirectly in the bid or contract which may result from the bid or in any of the expected profits which might arise there from; further, that no attempt has been made to influence or gain favorable advantage by communicating directly or indirectly with any official of the District. It is understood that any action taken which might tend to degrade the integrity of the competitive bidding process will be considered as grounds for disqualification or a breach of this contract.

1.05 CONTRACT CHANGES:

- A. In no event shall any understanding or agreement, contract modification, change order or other matter which would constitute a deviation from the terms of this contract be effective or binding upon the District unless expressly stated and agreed to in writing executed by the Official possessing contractual authority for said District.

1.06 CONTRACT GUIDELINES:

- A. Offerers agree that a contract does not become effective until it is awarded and a written agreement, purchase order, award letter, or other notice to proceed is executed or issued by the District and the contractor.

1.07 INDEMNIFICATION AND LEGAL COMPLIANCE: (MAY BE SUBSTITUTED BY PARA. 3.18 AIA 201-1997 CONTRACT).

1.08 MINORITY BUSINESS POLICY:

- A. It is the policy of the Owner that minority business enterprises shall have the maximum opportunity to participate in the District's purchasing process. Therefore, the District encourages all minority businesses to compete for goods, services, and construction contracts.

1.09 NON-COLLUSIVE AFFIDAVIT:

- A. By submitting a bid, the company and the individual personally signing the bid represent and warrant that such bid is genuine and is neither collusive nor made for or on behalf of any person not named, and that he has neither induced nor solicited any other company to place a sham bid nor directly or indirectly caused another company to refrain from or be unable to present a bid.

1.10 NON-DISCRIMINATION:

- A. The company shall not discriminate against, or segregate, a person or a group of persons on account of race, color, creed, religion, sex, sexual orientation, marital status, familial status, national origin, ancestry, disability or condition of acquired immune deficiency syndrome (AIDS) or AIDS-related complex in carrying out its duties and obligations pursuant to this agreement nor shall the company or any person claiming under or through the company establish or permit any such practice or practices of discrimination or segregation. The company must include in any and all subcontracts a provision similar to the proceeding.

1.11 PENALTY FOR COLLUSION

- A. If at any time it shall be found that the person, firm or corporation to whom a contract has been awarded has, in presenting any bid, colluded with any other party or parties, then, in the sole discretion of the District, the contract so awarded shall be null and void or considered breached and the contractor shall be liable to the District for any and all loss and damage of whatsoever nature, which the District may suffer and the District may seek a new contractor.

1.12 PROPRIETARY INFORMATION:

- A. All information submitted in response to this bid is public after the bid opening. The bidder should not include as a part of the response to the invitation to bid any information which the bidder believes to be a trade secret or otherwise privileged or confidential. If the bidder wishes to include such material with a bid, then the material should be supplied under separate cover and identified as confidential. The District does not warrant or agree to, but will endeavor to, keep that information confidential. Contractor acknowledges that information in the possession of the District may be subject to the provisions of the Arkansas Freedom of Information Act.

1.13 REJECTION OF BIDS:

- A. Refer to Section 004200 - BID PROPOSAL FORM

1.14 RESERVATIONS:

- A. This IFB does not commit the District to award a contract, to pay any costs incurred in the preparation of a bid in response to this invitation, or to procure or contract for services or supplies. The District reserves the right to accept, or reject, in part or its entirety, any bid received as a result of this IFB, if it is in the best interest of the District to do so.

1.15 SEVERABILITY:

- A. The finding or determination of any part or parts of the General Instruction, Terms and Conditions is void, unenforceable, invalid or voidable shall result in only that part being stricken with the remainder to continue in full force and effect.

1.16 STATEMENT OF EXPERIENCE AND QUALIFICATIONS:

- A. The company may be required, upon request, to prove to the satisfaction of the District that they have the skill, experience and the necessary facilities and financial resources to perform the contract in a satisfactory manner and within the required time. If the evidence of competency is not satisfactory, the bid of such company may be rejected.

1.17 WITHDRAWAL OF BID:

- A. A bid may be withdrawn before the expiration of the time during which bids may be submitted, without prejudice, by submitting a written request for its withdrawal to the District Contacting Official.

SECTION 2: SPECIAL INSTRUCTIONS, TERMS AND CONDITIONS

2.01 BID GUARANTEE AND PERFORMANCE BONDS:

- A. Bid Bond: Refer to SECTION 006000 - PROJECT FORM: BID BONDS
- B. Performance and Payment Bond: Refer to SECTION 006000 - PROJECT FORMS: PERFORMANCE AND PAYMENT BOND.

2.02 NO SMOKING POLICY:

- A. The Owner has a No Smoking Policy on all school properties.
- B. It is the policy of the Board of Education that all uses of tobacco and tobacco products, including smokeless tobacco, will be prohibited on all District facilities. At no time will the use of tobacco products be permitted in classrooms, corridors, restrooms, locker rooms, work areas, cafeterias, offices, faculty lounges, gymnasiums, all other rooms and school grounds.
- C. This policy applies to all Staff Members, Students, Visitors, General Contractors, Sub-Contractors, and Vendors. This policy is strictly enforced without exception.

2.03 INSURANCE REQUIREMENT:

- A. After bids are opened, the apparent low bidder must provide proof of insurance within five (5) business days from date of request by the District. Insurance must provide sufficient liability protection for all claims, whether direct or indirect, resulting from contractual operations. Failure to submit an insurance certificate by the time provided may be cause for bid disqualification. The following are recommended amounts for insurance coverage: (The District reserves the right to lower/raise these coverage's if it is in the best interest of the District).
- B. The Owner must be named as additional insured, and the certificate must contain a clause that the insurer will not cancel or change the insurance without first giving the Owner a minimum of 30 days prior written notice.
 - 1. Workmen's Compensation – Statutory Limits.
 - 2. General Liability
 - a. General Aggregate - \$2,000,000
 - b. Each Occurrence - \$1,000,000
- C. Builder's Risk – Provided by Owner - Fire Extended Coverage and Vandalism and Malicious Mischief Insurance: The Owner shall procure and maintain during the term of this contract and until work has been completed and accepted, Builder's Risk, Fire Extended Coverage, Vandalism and Malicious Mischief Insurance for an amount equal to 100% of the insurable property value of the project less the cost of any excavation, brick, stone or concrete foundation, piers or other supports which are below the under surface of the lowest basement floor or where there is no basement, piers which are below the surface of the ground or underground flues, pipes or wiring. Said insurance coverage to be written in the name of the Contractor and Owner.
- D. The required insurance must be written by a company licensed to do business in the State of Arkansas in accordance with A.C.A. 23-63 at the time the policy is issued. In addition, the companies must be acceptable to the Owner and Owner's agent.

2.04 CANCELLATION PROVISIONS: (MAY BE SUBSTITUTED BY PARA. 14.2 AIA 201-1997).

- A. Cancellation for Cause: The District may cancel the contract at any time for breach of contractual obligations by providing the contractor with a written notice of such cancellation. Should the District exercise its right to cancel the contract for such reasons, the cancellation shall become effective on the date as specified in the notice of cancellation sent to the contractor.

2.05 COMPLETION DATE:

- A. All work must be fully complete no later than the date indicated in SECTION 004200 - BID PROPOSAL FORM. If work is not completed by this date, liquidated damages will be assessed.

2.06 PRICING:

- A. Bid hereinafter is understood to include all expenses, taxes, incidentals and overhead; including, but not limited to wages, fringe benefits, supervision, material and equipment costs and it is further understood that the bidder shall bear the sum of all supplies (except as otherwise specified) necessary or desirable in order to perform the work. Pricing shall be made on those considerations specified in the aforementioned instructions for an award. No bidder may withdraw his bid for a period of 30 days after the date of bid opening.

2.07 AWARD OF CONTRACT:

- A. Bids will be considered on the basis of the price, however, the District reserves the right to establish the award criteria and to reject any or all and to award the Contract to the firm who, in the judgment of the District, is the best qualified to perform the work.

END OF SECTION

**SECTION 00 2113
INSTRUCTIONS TO BIDDERS**

SUMMARY

- 1.01 SEE AIA DOCUMENT A701 (2018 EDITION) , INSTRUCTIONS TO BIDDERS FOLLOWING THIS DOCUMENT.**
- 1.02 THE INSTRUCTIONS IN THIS DOCUMENT AMEND OR SUPPLEMENT THE INSTRUCTIONS TO BIDDERS AND OTHER PROVISIONS OF THE BIDDING AND CONTRACT DOCUMENTS.**

END OF SECTION

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AIA® Document A701® – 2018

Instructions to Bidders

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

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455
Renovation of Old Welding Shop Facility

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

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455
870-248-4000x4044

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

Steiling Architecture, PA
2912 Longview Dr
Jonesboro, AR 72401
870-933-6993

TABLE OF ARTICLES

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- 2 BIDDER'S REPRESENTATIONS**
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- 6 POST-BID INFORMATION**
- 7 PERFORMANCE BOND AND PAYMENT BOND**
- 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**

ADDITIONS AND DELETIONS:

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

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

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.

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.)

Reference the "Invitation to Bid" for method of obtaining 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 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.)

Submit requests by email to architect, Jeff Steiling at jeff@steilingarch.com

§ 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.

§ 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.)

Addenda will be emailed to Jonesboro Blueprint for distribution to plan holders and posting for their subscribers.

§ 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.)

Reference "Invitation for Bids" for requirements.

§ 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 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 90 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.)

Reference "Invitation for Bids" for requirements.

§ 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.)

The owner reserves the right to retain the bid security.

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.

§ 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.

§ 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.)

100% of the contract sum, including additions/deletions of scope by change order.

§ 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.)

N/A

- .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.)

N/A

- .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.)

N/A

- .4 Building Information Modeling Exhibit, if completed:

N/A

- .5 Drawings

Number	Title	Date
As listed in the Sheet Index		

- .6 Specifications

Section	Title	Date	Pages
As listed in the Table of Contents			

- .7 Addenda:

Number	Date	Pages
As enumerated and issued during bidding process		

- .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
Reference documents as shown in the Table of Contents			

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

N/A

Additions and Deletions Report for AIA® Document A701® – 2018

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 10:34:13 CDT on 06/02/2025.

Changes to original AIA text

PAGE 7

Number <u>As listed in the Sheet Index</u>	Title	Date	
Section <u>As listed in the Table of Contents</u>	Title	Date	Pages
Number <u>As enumerated and issued during bidding process</u>	Date	Pages	

PAGE 8

Document <u>Reference documents as shown in the Table of Contents</u>	Title	Date	Pages

Variable Information

PAGE 1

2503 - BRTC Old Welding Shop Renovation

1410 Highway 304 East
Pocahontas, AR 72455

Renovation of Old Welding Shop Facility

Black River Technical College

1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

870-248-4000x4044

Steiling Architecture, PA

2912 Longview Dr
Jonesboro, AR 72401

870-933-6993

PAGE 2

Reference the "Invitation to Bid" for method of obtaining bidding documents.

PAGE 3

Submit requests by email to architect, Jeff Steiling at jeff@steilingarch.com

PAGE 4

Addenda will be emailed to Jonesboro Blueprint for distribution to plan holders and posting for their subscribers.

Reference "Invitation for Bids" for requirements.

PAGE 5

§ 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

90
days after the opening of Bids, withdraw its Bid and request the return of its bid security.

Reference "Invitation for Bids" for requirements.

The owner reserves the right to retain the bid security.

PAGE 6

100% of the contract sum, including additions/deletions of scope by change order.

PAGE 7

N/A

N/A

N/A

N/A

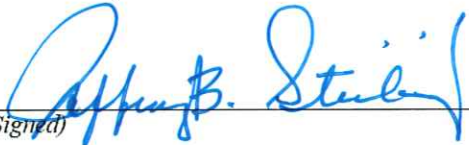
PAGE 8

N/A

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Jeffrey B Steiling, AIA, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 10:34:13 CDT on 06/02/2025 under Order No. 20250107536 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ - 2018, Instructions to Bidders, other than those additions and deletions shown in the associated Additions and Deletions Report.


(Signed)


(Title)


(Dated)

**SECTION 00 2117
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

1.01 GENERAL INFORMATION

- A. The "Instructions to Bidders", Standard form A701 of the American Institute of Architects, 2018 Edition, Articles 1 through 8, thereafter referred to as Instructions to Bidders, are hereby made a part of these specifications. Submission of a proposal will be taken as evidence that these articles have been examined, read and compiled with.
- B. The Supplementary Instructions modify, change, delete or add to the Instruction to Bidders. Where any part of the Instructions to Bidders is modified or voided by the Supplementary Instructions, the unaltered provisions of that part shall remain. In case of conflict, the Supplementary Instructions of these specifications take precedence over the Instructions to Bidders. The Instructions to Bidders, as well as the Supplementary Instructions shall cover all contracts and subcontracts and material suppliers on this job.

1.02 AMENDMENTS AND SUPPLEMENTARY INSTRUCTIONS

- A. The designated Articles of the AIA Document, Form A701, shall be amended and/or supplemented as follows:
 - 1. Refer to ARTICLE 2; BIDDER'S REPRESENTATION
 - a. Add the following paragraph:
 - 1) 2.1.5 Each Bidder, by making his Bid, represents that he and his Sub-Bidders are licensed in accordance with the laws of the State of Arkansas.
 - 2. Refer to ARTICLE 3; BIDDING DOCUMENTS
 - a. Revise the following paragraph to read as follows:
 - 1) 3.2.2 Substitutions for specified products will be considered under the provisions of Section 01600 - PRODUCT REQUIREMENTS.
 - 3. Refer to ARTICLE 7; PERFORMANCE BOND AND PAYMENT BOND.
 - a. Add the following paragraph:
 - 1) 7.1.4 The successful bidder shall provide a Performance and Labor and Material Payment Bond in the amount of one hundred (100%) of the contract sum, under the provisions stated in Article 7.
 - 4. Add the following ARTICLE:
 - a. ARTICLE 9 ADDITIONAL REQUIREMENTS
 - 1) 9.1 ARKANSAS CONTRACTORS BOND LAW (Act 37 of 1992)
 - (a) 9.1.1 Comply with requirements of the Arkansas Code Annotated Section 17-22-401 et. seq. A copy of the bond shall be filed with the Director of the Department of Finance and Administration by Contractor under provisions of Section 17-22-404 shall also be filed as a matter of record with the Contractor Licensing Board. -- Contractors Licensing Board, 621 E. Capitol, Little Rock, Arkansas (501) 372-4661.
 - 2) 9.2 RETAINAGE
 - (a) 9.2.1 A retainage will be withheld from Progress Payments as specified in the Modifications to General Conditions.
 - 3) 9.3 TIME OF COMPLETION
 - (a) 9.3.1 The Work required by the Contract Documents shall be Substantially Complete as indicated in Section 00825 - Liquidated Damages.
 - 4) 9.4 LIQUIDATED DAMAGES
 - (a) 9.4.1 Refer to Section 00825 - LIQUIDATED DAMAGES

END OF SECTION

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**SECTION 00 3110
WAGE RATE**

PART 1 GENERAL

1.01 WAGE DETERMINATIONS: DAVIS-BACON ACT WD # AR20250012 (6 PAGES FOLLOWING)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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"General Decision Number: AR20250012 01/03/2025

Superseded General Decision Number: AR20240012

State: Arkansas

Construction Type: Building

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

County: Randolph County in Arkansas.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at
<http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
0 01/03/2025

ENGI0624-006 01/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Crane.....	\$ 34.25	15.00
Forklift.....	\$ 33.25	15.00

IRON0321-010 08/01/2024

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 28.00	21.21

PAIN0424-008 07/01/2021

	Rates	Fringes
PAINTER (Spray).....	\$ 16.25 **	10.42

SHEE0036-035 06/01/2021

	Rates	Fringes
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 24.44	13.66

SUAR2015-009 01/09/2017

	Rates	Fringes
BRICKLAYER.....	\$ 19.15	0.00
CARPENTER, Includes Drywall Hanging.....	\$ 20.72	0.00
CEMENT MASON/CONCRETE FINISHER...	\$ 21.08	0.00
ELECTRICIAN.....	\$ 21.76	11.45
LABORER: Common or General.....	\$ 11.12 **	0.00
LABORER: Mason Tender - Brick...	\$ 12.32 **	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 23.08	0.00
OPERATOR: Bulldozer.....	\$ 18.14	0.00
PAINTER (Brush and Roller).....	\$ 15.68 **	0.00

PLUMBER.....	\$ 19.72	3.49
SPRINKLER FITTER (Fire Sprinklers).....	\$ 21.77	2.46
TRUCK DRIVER: Dump Truck.....	\$ 15.00 **	0.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658 (\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a

supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey

is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the

decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION"

**SECTION 00 4200
BID PROPOSAL FORM**

1.01 BID PROPOSAL

A. BIDDER'S INFORMATION

1. Company Name: _____
2. Company Address: _____
3. Contractor's License No: _____
4. Telephone No.: _____
5. Fax No: _____
6. Email Address: _____
7. Hereinafter called "Bidder".

B. OWNER'S INFORMATION

1. Mr. Martin Eggensperger
2. President
3. Black River Technical College
4. 1410 Hwy 304 East
5. Pocahontas, Arkansas 72455
6. Hereinafter called "Owner"

C. PROPOSED PROJECT

1. BRTC Pocahontas - Technology & Mathematics Exterior Modifications

1.02 THE BIDDER, IN COMPLIANCE WITH YOUR BID SOLICITATION FOR THE ABOVE REFERENCED PROJECT, AND HAVING EXAMINED THE CONTRACT DOCUMENTS AND THE SITE OF THE PROPOSED WORK, AND BEING FAMILIAR WITH ALL OF THE CONDITIONS SURROUNDING THE CONSTRUCTION OF THE PROPOSED PROJECT, INCLUDING THE AVAILABILITY OF MATERIALS AND LABOR, HEREBY PROPOSES TO FURNISH ALL LABOR, MATERIALS, AND SUPPLIES, AND TO CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, WITHIN THE TIME SET FORTH THEREIN, AND AT THE PRICES STATED BELOW. THESE PRICES ARE TO COVER ALL EXPENSES INCURRED IN PERFORMING THE WORK REQUIRED UNDER THE CONTRACT DOCUMENTS, OF WHICH THIS PROPOSAL IS A PART.

A. ADDENDA

The Undersigned has received and examined the following Addenda:

1. No. _____ Dated _____
2. No. _____ Dated _____
3. No. _____ Dated _____
4. and has incorporated the provisions in this Bid.

B. BASE BID PROPOSAL:

1. Complete demolition of designated portion of existing metal building with wood framed roof system, except for existing concrete floor slab to remain.
2. Demolition of metal roof and wall panels back to existing red-iron building framing of remainder of the building. Includes demolition of overhead and walk doors.
3. Provide and install new prefinished metal roof panels and wall panels on remaining building frame / subframe. Includes all new trims, fascias, gutters, downspouts accessories, etc. in standard color-group 2. Includes new overhead doors, walk-thru doors, frames and trim.

C. CONTRACT TIME

1. Bidder agrees to commence work under this contract within ten days of the date of "Notice to Proceed" from the Owner.

2. Bidder agrees to Substantially Complete the project no later than _____ from the date of the Notice to Proceed and fully complete the project no later than _____

D. ALTERNATES

1. Should alternates be substitutes, the undersigned agrees to adjust the sum as follows:
a. **Alternate No. 1:** All electrical work for this Project shall be a Deductive Alternate from the Base Bid:

_____ Dollars (_____).

E. INSURANCE CERTIFICATES

1. Include with bid proposal Proof of Liability Insurance and Proof of General Commercial Liability Insurance with limits as required by the . and on forms similar to the samples attached in Section 00600 - Bonds and Certificates.

F. FURTHER CONDITIONS

The Undersigned, by submitting this Bid, further agrees:

1. This Bid shall be valid and may not be withdrawn within 30 days after the scheduled closing time for receiving bids.
2. To accept the provisions of Section 00 1100 - INVITATION FOR BIDS
3. To accept the provisions of Section 00 1150 - SUPPLEMENTARY INVITATION FOR BIDS
4. To accept the provisions of Section 00 2113 - INSTRUCTIONS TO BIDDERS.
5. To accept the provisions of Section 00 2117 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS.
6. To enter into and execute a Contract, if awarded, on the basis of this Proposal.
7. To enter into and execute a Contract, if awarded, on the basis of this Proposal, and to furnish the Performance Bond and Labor and Material Payment Bond in accordance with the General Conditions of the Contract.
8. Upon notice of the acceptance of this bid, bidder shall execute the contract and deliver a surety bond within 10 calender days.
9. The bid security (5% of the Bid) attached in the sum _____ Dollars (\$ _____).
10. To accomplish the Work in accordance with the Contract Documents, of which this Proposal is made a part.
11. The Owner may reject any and all bids and may reject a bid of any party who has failed to perform satisfactorily, been unfaithful and/or delinquent in any former relationship with the Owner. The Owner reserves the right to waive any irregularities or formalities in any solicitation or bid response. The Owner shall be the sole judge as to which bid is best and, in determining that fact, may consider the contractor's business integrity, financial resources, experience, facilities, and/or capacity for performing the work.

G. SUBCONTRACTORS

1. Subcontractors and license numbers: (required if trade subcontract is over \$20,000.00)
- a. Plumbing: _____
1) License No. _____
 - b. Mechanical: _____
1) License No. _____
 - c. Electrical: _____
1) License No. _____
 - d. Roofing: _____
1) License No. _____

H. SUBMITTED BY:

1. Bidder: _____
a. Title: _____

b. Date: _____

END OF SECTION

This page intentionally left blank

**SECTION 00 4323
ALTERNATES FORM**

PARTICULARS

1.01 THE FOLLOWING IS THE LIST OF ALTERNATES REFERENCED IN THE BID SUBMITTED BY:

1.02 (BIDDER) _____

1.03 TO (OWNER): BLACK RIVER TECHNICAL COLLEGE

1.04 DATED _____ AND WHICH IS AN INTEGRAL PART OF THE BID FORM.

ALTERNATES LIST

2.01 THE FOLLOWING AMOUNTS SHALL BE ADDED TO OR DEDUCTED FROM THE BID AMOUNT. REFER TO SECTION 01 2300 - ALTERNATIVES.

ALTERNATE # 1: INDICATE ALTERNATE VALUE ON BID FORM.

END OF SECTION

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**SECTION 00 5200
AGREEMENT FORM**

PART 1 GENERAL

FORM OF AGREEMENT

2.01 "AIA 101 - 2017 EDITION - STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR WHERE THE BASIS OF PAYMENT IS A STIPULATED SUM" FORMS THE BASIS OF CONTRACT BETWEEN THE OWNER AND CONTRACTOR.

2.02 RELATED REQUIREMENTS

- A. Section 00 7200 - General Conditions.
- B. Section 00 7300 - Supplementary Conditions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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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 Ninth day of June in the year Two Thousand Twenty-Five
(In words, indicate day, month and year.)

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

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455
870-248-4000x4044

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

To Be Determined

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

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455
Renovate Old Welding Shop

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

Steiling Architecture, PA
2912 Longview Dr
Jonesboro, AR 72401
870-933-6993

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

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

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

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.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

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

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

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.)

- ☐ 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.)

- ☐ Not later than () 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.

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

§ 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

§ 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.)

§ 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.

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

N/A

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the Thirtieth day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the Fifteenth 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 Fifteen (15) 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.)

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.)

Insurances, bonds, stored materials

§ 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.)

5% shall be retained until closeout documents are submitted, reviewed, accepted as complete, and final pay application is submitted.

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

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

§ 5.2 Final Payment

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

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

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 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.)

6.00 % per annum

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
- ☒ Litigation in a court of competent jurisdiction
- ☐ 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.)

Owner shall pay for materials and work completed to the date of termination. In addition, the owner shall pay for reasonable expenses incurred by the contractor to vacate the site and re-assign personnel committed to this project.

§ 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)

Rhonda Stone
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455
870-248-4000
rhonda.stone@blackrivertech.edu

§ 8.3 The Contractor’s representative:

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

To Be Determined

§ 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.

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

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with a building information modeling exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with a building information modeling exhibit, 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:

N/A

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 Building information modeling exhibit, dated as indicated below:
(Insert the date of the building information modeling exhibit incorporated into this Agreement.)

- .5 Drawings

Number	Title	Date

- .6 Specifications

Section	Title	Date	Pages

- .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.

- .8 Other Exhibits:

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

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

☐ The Sustainability Plan:

Title	Date	Pages

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

- .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.)

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

OWNER *(Signature)*

BY: Rhonda Stone

(Printed name and title)

CONTRACTOR *(Signature)*

(Printed name and title)

Additions and Deletions Report for AIA® Document A101® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 09:45:43 CDT on 06/09/2025.

Changes to original AIA text

There are no edits to the original text

Variable Information

PAGE 1

AGREEMENT made as of the Ninth day of June in the year Two Thousand Twenty-Five
(In words, indicate day, month and year.)

Black River Technical College

1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

870-248-4000x4044

To Be Determined

2503 - BRTC Old Welding Shop Renovation

1410 Highway 304 East
Pocahontas, AR 72455

Renovate Old Welding Shop

Steiling Architecture, PA

2912 Longview Dr
Jonesboro, AR 72401

870-933-6993

PAGE 4

N/A

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the Thirtieth day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the Fifteenth 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 Fifteen (15) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

5

Insurances, bonds, stored materials

PAGE 5

N/A

5% shall be retained until closeout documents are submitted, reviewed, accepted as complete, and final pay application is submitted.

N/A

6.00 % per annum

N/A

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017

☒ Litigation in a court of competent jurisdiction

☐ Other (*Specify*)

PAGE 6

Owner shall pay for materials and work completed to the date of termination. In addition, the owner shall pay for reasonable expenses incurred by the contractor to vacate the site and re-assign personnel committed to this project.

Rhonda Stone

1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

870-248-4000

rhonda.stone@blackrivertech.edu

To Be Determined

N/A

N/A

**SECTION 00 6000
PROJECT FORMS**

BOND FORMS REQUIRED:

1.01 BID BOND:

- A. Each bid will include with it a bid bond in the amount of 5% of the total bid offered. It will be in the form of a cashier's check or insurance surety bond (with Power of Attorney attached) made payable to the owner.

1.02 PERFORMANCE AND PAYMENT BONDS:

- A. Performance and Payment Bonds, AIA Document A312 - 2010 Edition
- B. If bid is over \$20,000, a Performance and Payment bond will also be furnished by the successful bidder within ten (10) days after receipt of the Owner's intent to award notice. Failure to furnish the required bonds may cause forfeiture of bid guarantee to the owner as liquidated damages.
- C. The "Performance and Payment Bond" will be in the amount equal to 100% of the contract price as security for the faithful performance of this contract price and for payment of all indebtedness for labor and materials furnished or performed in connection with this contract. The bond will be written by a surety company which is qualified and is authorized to do business in the State of Arkansas, according to A.C.A. 22-9-402(a)(b) and filing with said bond, his power of attorney as his authority. The bond will be written in favor of the Owner and executed per Arkansas state law. An original and two (2) copies of the bond must be furnished, with power of attorney attached to each. The Contractor will file and record the original with the Clerk in the Circuit Court of the County where the project is located. The Contractor is to pay all expense incidentals to file the bond. The remaining two copies should be certified by the Clerk to evidence the filing of the original and these two copies submitted to the Owner.

1.03 INSURANCE CERTIFICATES REQUIRED:

- A. G715 Supplemental Attachment for Accord Certificate of Insurance (25-2) 2017
- B. Conform with Requirements as shown in attached sample certificates following this page and include similar certificates with Bid Proposal.
 - 1. Sample Certificate of Liability Insurance naming the successful Bidder as Certificate Holder
 - 2. Sample Certificate of Commercial General Liability.

END OF SECTION

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AIA® Document A312® – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

To Be Determined

SURETY:

(Name, legal status and principal place of business)

To Be Determined

OWNER:

(Name, legal status and address)

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

CONSTRUCTION CONTRACT

Date: 06-02-2025

Amount: \$

Description:

(Name and location)

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

ADDITIONS AND DELETIONS:

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

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

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

Company: (Corporate seal)

Company: (Corporate seal)

CONTRACTOR AS PRINCIPAL

(Signature)

SURETY (Signature)

(Printed name and title)

(Printed name and title)

(Any additional signatures appear on the last page of this Performance Bond)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

To Be Determined

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

Rhonda Stone
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

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870-248-4000
rhonda.stone@blackrivertech.edu

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

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

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

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

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

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

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Variable Information

PAGE 1

CONTRACTOR:

(Name, legal status and address)

To Be Determined

SURETY:

(Name, legal status and principal place of business)

To Be Determined

OWNER:

(Name, legal status and address)

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

CONSTRUCTION CONTRACT

Date: 06-02-2025

Amount: \$

Description:

(Name and location)

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455

AGENT or BROKER:

To Be Determined

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

Rhonda Stone
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455
870-248-4000
rhonda.stone@blackrivertech.edu

AIA® Document A312® – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

To Be Determined

SURETY:

(Name, legal status and principal place of business)

To Be Determined

OWNER:

(Name, legal status and address)

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

CONSTRUCTION CONTRACT

Date: 06-02-2025

Amount: \$

Description:

(Name and location)

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

ADDITIONS AND DELETIONS:

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

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

Company: (Corporate seal)

Company: (Corporate seal)

CONTRACTOR AS PRINCIPAL

(Signature)

SURETY (Signature)

(Printed name and title)

(Printed name and title)

(Any additional signatures appear on the last page of this Payment Bond)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

To Be Determined

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

Rhonda Stone
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

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870-248-4000
rhonda.stone@blackrivertech.edu

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant

under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

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Variable Information

PAGE 1

CONTRACTOR:

(Name, legal status and address)

To Be Determined

SURETY:

(Name, legal status and principal place of business)

To Be Determined

OWNER:

(Name, legal status and address)

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

CONSTRUCTION CONTRACT

Date: 06-02-2025

Amount: \$

Description:

(Name and location)

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455

AGENT or BROKER:

To Be Determined

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

Rhonda Stone
1410 Highway 304 East PO Box
468
Pocahontas, AR 72455
870-248-4000
rhonda.stone@blackrivertech.edu

AIA[®] Document G715[™] – 2017

Supplemental Attachment for ACORD Certificate of Insurance 25

PROJECT: <i>(name and address)</i> 2503 - BRTC Old Welding Shop Renovation 1410 Highway 304 East Pocahontas, AR 72455	CONTRACT INFORMATION: Contract For: General Construction Date: 06-02-2025	CERTIFICATE INFORMATION: Producer: Insured: Date:
OWNER: <i>(name and address)</i> Black River Technical College 1410 Highway 304 East PO Box 468 Pocahontas, AR 72455	ARCHITECT: <i>(name and address)</i> Steiling Architecture, PA 2912 Longview Dr Jonesboro, AR 72401	CONTRACTOR: <i>(name and address)</i> To Be Determined

A. General Liability	Yes	No	N/A
1. Does this policy include coverage for:			
a Damages because of bodily injury, sickness, or disease, including occupational sickness or disease, and death of any person?	☐	☐	☐
b Personal injury and advertising injury?	☐	☐	☐
c Damages because of physical damage to or destruction of tangible property, including the loss of use of such property?	☐	☐	☐
d Bodily injury or property damage arising out of completed operations?	☐	☐	☐
e The Contractor's indemnity obligations included in the Contract Documents?	☐	☐	☐
2. Does this policy contain an exclusion or restriction of coverage for:			
a Claims by one insured against another insured, where the exclusion or restrictions is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim?	☐	☐	☐
b Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor?	☐	☐	☐
c Claims for bodily injury other than to employees of the insured?	☐	☐	☐
d Claims for the Contractor's indemnity obligations included in the Contract Documents arising out of injury to employees of the insured?	☐	☐	☐
e Claims for loss excluded under a prior work endorsement or other similar exclusionary language?	☐	☐	☐
f Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language?	☐	☐	☐
g Claims related to residential, multi-family, or other habitational projects?	☐	☐	☐
h Claims related to roofing?	☐	☐	☐
i Claims related to exterior insulation finish systems, synthetic stucco, or similar exterior coatings or surfaces?	☐	☐	☐
j Claims related to earth subsistence or movement?	☐	☐	☐
k Claims related to explosion, collapse, and underground hazards?	☐	☐	☐
B. Other Insurance Coverage	Yes	No	N/A
1. Indicate whether the Contractor has the following insurance coverages and, if so, indicate the coverage limits for each.			
a Professional liability insurance	☐	☐	☐
Coverage limits:			
b Pollution liability insurance	☐	☐	☐
Coverage limits:			
c Insurance for maritime liability risks associated with the operation of a vessel	☐	☐	☐

- Coverage limits:
- d Insurance for the use or operation of manned or unmanned aircraft ☐ ☐ ☐
- Coverage limits:
- e Property insurance ☐ ☐ ☐
- Coverage limits:
- f Railroad protective liability insurance ☐ ☐ ☐
- Coverage limits:
- g Asbestos abatement liability insurance ☐ ☐ ☐
- Coverage limits:
- h Insurance for physical damage to property while it is in storage and in transit to the construction site ☐ ☐ ☐
- Coverage limits:
- i Other: ☐ ☐ ☐

(Signature)

(Printed name and title)

Date

**SECTION 00 6400
RELEASE OF CLAIMS**

1.01 COMES THE UNDERSIGNED, WHO DOES HEREBY SWEAR AND AFFIRM THAT:

- A. My name is:
- B. My address is:
- C. Doing business as:
- D. Pursuant to Contract Number:
- E. Contract Description:
- F. Contract Date:

1.02 EXCEPTED AS LISTED BELOW IN PARAGRAPH 4, I HAVE PAID OTHERWISE SATISFIED ALL OBLIGATIONS FOR ALL MATERIALS AND EQUIPMENT FURNISHED, FOR ALL WORK, LABOR, AND SERVICES PERFORMED, AND FOR ALL KNOWN CLAIMS AGAINST THE CONTRACTOR ARISING IN ANY MANNER IN CONNECTION WITH THE PERFORMANCE OF THE CONTRACT REFERENCED ABOVE FOR WHICH THE OWNER OR HIS PROPERTY MIGHT IN ANY WAY BE HELD RESPONSIBLE.

1.03 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, EXCEPTED AS LISTED BELOW IN PARAGRAPH 4, THE RELEASES OR WAIVERS OF CLAIM, ATTACHED HERETO AND INCORPORATED HEREIN, INCLUDE THE CONTRACT, ALL SUBCONTRACTORS, ALL SUPPLIERS OF MATERIALS AND EQUIPMENT, AND ALL PERFORMERS OF WORK, LABOR OR SERVICES WHO HAVE OR MAY HAVE CLAIMS AGAINST ANY PROPERTY OF THE OWNER ARISING IN ANY MANNER OUT OF THE PERFORMANCE OF THE CONTRACT REFERENCED ABOVE.

1.04 THE EXCEPTIONS ARE: (IF NONE, INDICATE "NONE." IF REQUIRED BY THE OWNER, THE CONTRACTOR SHALL FURNISH BOND SATISFACTORY TO THE OWNER FOR EACH EXCEPTION).

A. Exception(s): _____

B. Affiant name:

C. Date:

VERIFICATION

STATE OF ARKANSAS

COUNTY OF:

SUBSCRIBED AND SWORN TO BEFORE ME THIS DATE:

NOTARY PUBLIC NAME:

MY COMMISSION EXPIRES:

END OF SECTION

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**SECTION 00 7200
GENERAL CONDITIONS**

FORM OF GENERAL CONDITIONS

1.01 THE GENERAL CONDITIONS APPLICABLE TO THIS CONTRACT IS ATTACHED FOLLOWING THIS PAGE.

SUPPLEMENTARY CONDITIONS

2.01 REFER TO DOCUMENT 00 7300 - SUPPLEMENTARY CONDITIONS FOR AMENDMENTS TO THESE GENERAL CONDITIONS.

END OF SECTION

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AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

2503 - BRTC Old Welding Shop Renovation
1410 Highway 304 East
Pocahontas, AR 72455

THE OWNER:

(Name, legal status and address)

Black River Technical College
1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

THE ARCHITECT:

(Name, legal status and address)

Steiling Architecture, PA
2912 Longview Dr
Jonesboro, AR 72401

TABLE OF ARTICLES

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- 3 CONTRACTOR**
- 4 ARCHITECT**
- 5 SUBCONTRACTORS**
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**
- 7 CHANGES IN THE WORK**
- 8 TIME**
- 9 PAYMENTS AND COMPLETION**
- 10 PROTECTION OF PERSONS AND PROPERTY**
- 11 INSURANCE AND BONDS**
- 12 UNCOVERING AND CORRECTION OF WORK**
- 13 MISCELLANEOUS PROVISIONS**

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

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™–2017, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

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

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

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

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

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

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

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

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

§ 1.3 Capitalization

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

§ 1.4 Interpretation

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

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

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

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

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

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

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

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

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

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

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

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

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

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

§ 2.5 Owner's Right to Carry Out the Work

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

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the

purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

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

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

§ 3.3 Supervision and Construction Procedures

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

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

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

§ 3.4 Labor and Materials

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

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

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

§ 3.5 Warranty

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

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

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

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

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

§ 3.7.4 Concealed or Unknown Conditions

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

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

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct,

but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 Superintendent

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

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

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

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

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

§ 3.11 Documents and Samples at the Site

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

constructed.

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

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

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

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

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

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

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

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The

Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

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

§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the

Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

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

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

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

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

§ 4.2.4 Communications

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

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

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

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

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

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

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

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

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

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

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

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

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

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

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

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor’s rights and obligations under the subcontract.

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

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

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

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

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

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

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

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

§ 6.3 Owner's Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

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

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

§ 7.2 Change Orders

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

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

§ 7.3 Construction Change Directives

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

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

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

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

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

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

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

§ 7.4 Minor Changes in the Work

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

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

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

§ 8.2 Progress and Completion

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

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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

§ 8.3 Delays and Extensions of Time

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

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

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

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

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

whom the Contractor intends to pay.

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

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

§ 9.4 Certificates for Payment

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

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

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

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

- or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

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

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

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

§ 9.6 Progress Payments

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

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

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

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

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

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

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

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

§ 9.7 Failure of Payment

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

§ 9.8 Substantial Completion

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

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

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

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

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

§ 9.9 Partial Occupancy or Use

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

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

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

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

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

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

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

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

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

§ 10.2 Safety of Persons and Property

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

- .1 employees on the Work and other persons who may be affected thereby;

- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

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

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

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

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

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

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

§ 10.2.8 Injury or Damage to Person or Property

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

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed

by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

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

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

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

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

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

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

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve

the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

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

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

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

§ 11.3 Waivers of Subrogation

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

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

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

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

fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

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

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

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

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

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

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

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

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

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

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

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

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

approvals where building codes or applicable laws or regulations so require.

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

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

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

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

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

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

Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

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

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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

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

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

§ 14.3 Suspension by the Owner for Convenience

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

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

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

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

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

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

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

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

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

§ 15.1.4 Continuing Contract Performance

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

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

§ 15.1.5 Claims for Additional Cost

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

§ 15.1.6 Claims for Additional Time

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

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

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

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

may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially

similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

Additions and Deletions Report for AIA® Document A201® – 2017

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 09:59:56 CDT on 06/02/2025.

Changes to original AIA text

There are no edits to the original text

Variable Information

PAGE 1

2503 - BRTC Old Welding Shop Renovation

1410 Highway 304 East
Pocahontas, AR 72455

Black River Technical College

1410 Highway 304 East PO Box 468
Pocahontas, AR 72455

Steiling Architecture, PA

2912 Longview Dr
Jonesboro, AR 72401

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Jeffrey B Steiling, AIA, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 09:59:56 CDT on 06/02/2025 under Order No. 20250107536 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ - 2017, General Conditions of the Contract for Construction, other than those additions and deletions shown in the associated Additions and Deletions Report.


(Signed)


(Title)


(Dated)

**SECTION 00 7300
SUPPLEMENTARY CONDITIONS**

PART 1 GENERAL

1.01 SUMMARY

- 1.02 THESE SUPPLEMENTARY CONDITIONS AMEND AND SUPPLEMENT THE GENERAL CONDITIONS DEFINED IN DOCUMENT 00 7200 - GENERAL CONDITIONS AND OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AS INDICATED BELOW. PROVISIONS THAT ARE NOT SO AMENDED OR SUPPLEMENTED REMAIN IN FULL FORCE AND EFFECT.**
- 1.03 THE TERMS USED IN THESE SUPPLEMENTARY CONDITIONS THAT ARE DEFINED IN THE GENERAL CONDITIONS HAVE THE MEANINGS ASSIGNED TO THEM IN THE GENERAL CONDITIONS.**

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

MODIFICATIONS TO AIA A201

4.01 ARTICLE 2.2 - INFORMATION AND SERVICES REQUIRED OF THE OWNER

- A. Delete paragraph 2.2.5 and replace with the following:
1. 2.2.5 The Contractor will be furnished free of charge a total of (5) sets of Contract Drawings and Project Manual. Additional sets will be furnished at the cost of reproduction, postage and handling.

4.02 ARTICLE 3.4 - LABOR AND MATERIALS

- A. Add the following paragraphs:
1. 3.4.3 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications).
 2. 3.4.4 By making requests for substitutions based on Subparagraph 3.4.3 above, the Contractor:
 - a. represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.
 - b. represents that the Contractor will provide the same warranty for substitution that the Contractor would for that specified;
 - c. certifies that the cost data presented is complete and includes all related costs under this Contract except that Architect's redesign costs, and waives all claims additional costs related to the substitution which subsequently become apparent; and
 - d. will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be completed in all respects.

4.03 ARTICLE 5 - SUBCONTRACTORS

- A. Add the following paragraph:
1. 5.2.1.1 Not later than 15 days after the date of NOTICE TO PROCEED, the Contractor shall furnish in writing to the Architect the names of persons or entities proposed as manufacturers for each of the product identified in the General Requirements (Division 1 of the Specifications) and, where applicable, the names of the installing Subcontractor.

4.04 ARTICLE 7 - CHANGES IN THE WORK

- A. Add the following paragraph 7.1.4:
1. 7.1.4 References to the contractor calculating overhead and profit as part of Change Orders, Construction Change Directives and/ or Minor Change in the Work shall be replaced with the following maximum allowances:
 - a. For the Contractor, for Work performed by the Contractor's own forces, 15 percent of the cost.

- b. For the Contractor, for Work performed by the Contractor's Subcontractor, 10 percent of the amount due the Subcontractor.
- c. For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, 10 percent of the cost.
- d. For each Subcontractor, for Work performed by the Subcontractor's Sub-subcontractors, 10 percent of the amount due the Sub-subcontractor.
- e. Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.6.
- f. In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major costs items are Subcontracts, they shall be itemized also. In no case will a change involving over \$250 be approved without such itemization.

4.05 ARTICLE 8 - TIME

- A. Add the following subparagraph:
 - 1. 8.1.5: Contract Time is identified in Section 00420 - Bid Proposal Form.

4.06 ARTICLE 9.3 - APPLICATIONS FOR PAYMENT

- A. Add the following to paragraph to 9.3.1.:
 - 1. The form of Application for Payment shall be notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet. Retainage shall comply with ACA 22-9-601.
 - 2. 9.3.1.4 contractor shall submit 5 copies of Application for Payment.

4.07 ARTICLE 9.6 - PROGRESS PAYMENTS

- A. Add the following:
 - 1. The Owner may nullify the whole or any part of any Certificate for Payment previously issued, to such extend as may be necessary in its opinion to protect the Owner from loss because of:
 - a. When periodic payments are made, then fivepercent (5%) will be withheld in accordance with Arkansas Code Annotated 22-9-601 et. seq.;
 - b. Defective work not remedied;
 - c. Third party claims filed or reasonable evidence indicating problem filing to such claims;
 - d. Failure of the contractor to make payments properly to subcontractors or for labor, materials, or equipment, also see A2-12.2;
 - e. Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum.
 - f. Damage to the Owner or another contractor;
 - g. Reasonable evidence that the work will not be completed within the contract time; or
 - h. Persistent failure to carry out the work in accordance with the contract documents.

4.08 ARTICLE 9.7 - FAILURE OF PAYMENT

- A. Delete paragraph 9.7.1.

4.09 ARTICLE 10.2 - SAFETY OF PERSONS AND PROPERTY

- A. Add the following paragraph:
 - 1. 10.2.4.1 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary, the Contractor shall give the Owner reasonable advance notice.

4.10 ARTICLE 11.1 - CONTRACTOR'S LIABILITY INSURANCE

- A. Refer to 11.1.1.

1. In the fourth line following the word "located" insert the words "to which the Owner has no objections".
- B. Refer to 11.1.1.8
 1. Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:
 - a. Premises Operations (including X, C, and U coverage's as applicable).
 - b. Independent Contractor's Protective.
 - c. Products and Completed Operations.
 - d. Personal Injury Liability with Employment Exclusion deleted.
 - e. Contractual, including specified provisions for Contractor's obligation under Paragraph 3.18.
 - f. Owned, non-owned and hired motor vehicles.
 - g. Broad Form Property Damage including Completed Operations.
- C. Refer to 11.1.1.9
 1. If the General Liability coverages are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination date of the policy or applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.
- D. Refer to 11.1.2
 1. Add the following paragraph
 - a. 11.1.2.1 The Insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law:
 - 1) Workmen's Compensation - Statutory Requirements.
 - 2) Comprehensive General Liability Insurance shall be maintained with aggregate limit of not less than \$2,000,000.00.
 - 3) Comprehensive Automobile Liability Insurance \$500,000.00 combined single limit for both Bodily Injury and Property Damage.
 - 4) Owner's and Contractor's Protective Liability Insurance shall be maintained with aggregate limit not less than \$2,000,000.00, with Architect as additional insured.
 - b. 11.1.2.2 Furnish Certificates of Insurance, AIA Documents G705, three copies, showing required insurance is in force before starting contract work. Furnish copies of subsequent endorsements amending coverage or limits.

4.11 ARTICLE 11.3 - PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE

- A. Add the following paragraphs:
 1. 11.3.1.2 The General Contractor shall effect and maintain insurance provide in this Article as the interest of the Owner and Contractor may appear. Said insurance in a Company or Companies to which the Owner has no reasonable objection, shall include coverage for damage resulting from vandalism and malicious mischief in the amount of 100%.

4.12 ARTICLE 11.4 - PROPERTY INSURANCE

- A. Add the following sentence to paragraph 11.4.1.1.
 1. The form of policy for this coverage shall be Completed Value.
- B. Delete paragraph 11.4.1.4, and replace with the following:
 1. 11.3.1.4 The Contractor shall provide insurance coverage for portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also for portions of the Work in transit.

4.13 ARTICLE 11.5 - PERFORMANCE BOND AND PAYMENT BOND

- A. Delete Subparagraph 11.5.1 and substitute the following:
 1. 11.5.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the

Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

2. 11.5.1.1 Failure to deliver bond shall be considered abandonment of the Contract and Bid Security shall be retained as liquidated damages. The bond shall comply with the laws of the State: shall be written by a Surety Company authorized to do business in the State and approved by the Owner. The bond shall be written in favor of the Owner. The contractor shall file the bond with the Circuit Clerk and recorder of the County in which the work is to be performed. The contractor shall provide evidence that the bonds have been filed.
3. 11.4.1.2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

B. Add the following subparagraph:

4.14 ARTICLE 14.4 - TERMINATION BY THE OWNER FOR CONVENIENCE

A. Revise Subparagraph 14.4.3 as follows:

1. 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment from the Owner on the same basis provided in Subparagraph 14.1.2.

END OF SECTION

**SECTION 00 8250
LIQUIDATED DAMAGES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Time of Substantial Completion.
 - 1. Bidder fully agrees to commence Work within ten (10) days of the Notice to Proceed from the Owner and to fully complete the Work in the time stated on the Bid Proposal Form.

1.02 RELATED SECTIONS

- A. Section 00110 - Invitation for Bids: Base Bid Proposal.
- B. Section 00700 - General Conditions: Article 8 Time.

1.03 LIQUIDATED DAMAGES

- A. Liquidated damages imposed against the contractor for failure to meet the final agreed upon completion date will be \$500.00 for each workday beyond the final agreed upon completion date. The contractor shall be relieved of delays due to causes beyond his control such as Acts of God, national emergency, strikes, or fire. The contractor must notify the Owner's Contracting Official in writing, on a timely basis, of such developments stating reason, justification and extent of delay. Weather days will be allowed to be used at the discretion of the contractor and the use of each weather day must be documented and filed with the Owner's Contract Official within 10 days of such use. Weather days will be in accordance with the average inclement weather days as recorded by the National Weather Bureau for the geographical area of the contract.

1.04 EXTENSION OF TIME

- A. Extension of time will be considered in accordance with the General Conditions for circumstances beyond the General Contractors control.
- B. No damages will be assessed for parts of days.

1.05 DISTRIBUTION OF DAMAGES

- A. The amount of distribution of damages to each contractor or material supplier is at the discretion of the General Contractor.
- B. The General Contractor must bind each of his Sub-Contractors to the same requirements that the General Contractor is bound to the Owner.

1.06 LEGAL HOLIDAYS

- A. Legal Holidays as observed by this Agreement.
 - 1. New Years Day.
 - 2. Memorial Day.
 - 3. Independence Day.
 - 4. Labor Day.
 - 5. Thanksgiving Day.
 - 6. Day after Thanksgiving Day.
 - 7. Christmas Day.
- B. No other days will be considered. No site visits will be furnished on legal holidays, Saturdays, or Sundays by the Architect or Engineers.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 1000
SUMMARY**

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: BRTC Pocahontas Old Welding Shop Renovation
- B. Owner's Name: Black River Technical College.
- C. Architect's Name: Steiling Architecture.
- D. The Project consists of the following.
 - 1. BASE BID PROPOSAL:
 - a. Complete demolition of designated portion of existing metal building with wood framed roof system, except for existing concrete floor slab to remain.
 - b. Demolition of metal roof and wall panels back to existing red-iron building framing on remainder of the building. Includes demolition of overhead and walk doors.
 - c. Construct new exterior wall to enclose north side of existing building as described on bid documents.
 - d. Provide and install new prefinished metal roof panels and wall panels on existing building frame / subframe. Includes all new trims, fascias, gutters, downspouts accessories, etc. in standard color-group 2. Includes new overhead doors, walk-thru doors, frames and trim.
 - 2. Interior Painting: Interior exposed structure, and attachments, new or repaired by this contract, shall be cleaned and painted.
 - 3. Contractors are responsible for verification of all existing site conditions, dimensions and quantities required to provide a complete project and specified warranties.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 5200 - Agreement Form.

1.03 OWNER OCCUPANCY

- A. Owner intends to continue to occupy portions of the existing building during the entire construction period.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Arrange use of site and premises to allow:
 - 1. Owner occupancy.
 - 2. Work by Others.
 - 3. Work by Owner.
- C. Provide access to and from site as required by law and by Owner:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- D. Existing building spaces may not be used for storage.
- E. Time Restrictions:
 - 1. Limit conduct of especially noisy exterior work to the hours of 8:00 am to 6:00 pm..
- F. Utility Outages and Shutdown:
 - 1. Limit disruption of utility services to hours the site is unoccupied.

2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
3. Prevent accidental disruption of utility services to other facilities.

1.05 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Owner.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 2000
PRICE AND PAYMENT PROCEDURES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum.
- C. Documentation of changes in Contract Time.
- D. Change procedures.
- E. Correlation of Contractor submittals based on changes.
- F. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

- A. Section 00 5200 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.
- B. Document 00 7200 - General Conditions and Document 00 7300 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.
- C. Document 00 7300 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.
- D. Section 01 2100 - Allowances: Payment procedures relating to allowances.
- E. Section 01 2200 - Unit Prices: Monetary values of unit prices; Payment and modification procedures relating to unit prices.

1.03 SCHEDULE OF VALUES

- A. Forms filled out by hand will not be accepted.
- B. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.
- C. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- D. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.
- E. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.
- G. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Forms filled out by hand will not be accepted.
- C. Present required information in typewritten form.
- D. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
- E. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.

3. Scheduled Values.
 4. Previous Applications.
 5. Work in Place and Stored Materials under this Application.
 6. Authorized Change Orders.
 7. Total Completed and Stored to Date of Application.
 8. Percentage of Completion.
 9. Balance to Finish.
 10. Retainage.
- F. Execute certification by signature of authorized officer.
 - G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
 - H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
 - I. Submit three hard-copies of each Application for Payment.
 - J. Include the following with the application:
 1. Transmittal letter as specified for submittals in Section 01 3000.
 2. Construction progress schedule, revised and current as specified in Section 01 3000.
 - a. Written request for proposed changes in Contract Time, along with supporting data that would substantiate such request.
 3. Partial release of liens from major subcontractors and vendors.
 4. Affidavits attesting to off-site stored products.
 - K. When Steiling Architecture requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

- A. Steiling Architecture will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710.
- B. For other required changes, Steiling Architecture will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Steiling Architecture will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 5 days.
- D. Contractor may propose a change by submitting a request for change to Steiling Architecture, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 6000.
- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
 1. For change requested by Steiling Architecture for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.

2. For change requested by Contractor, the amount will be based on Contractor's request for a Change Order as approved by Steiling Architecture.
 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
 4. For change ordered by Steiling Architecture without a quotation from Contractor, the amount will be determined by Steiling Architecture based on Contractor's substantiation of costs as specified for Time and Material work.
- F. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide the following data:
 - a. Quantities of products, labor, and equipment.
 - b. Taxes, insurance, and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly documented.
 2. Support each claim for additional costs with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: Steiling Architecture will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- J. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 1. All closeout procedures specified in Section 01 7000.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 2100
ALLOWANCES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Contingency allowance (for General Contractor only).
- B. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

- A. Section 01 2000 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CONTINGENCY ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
- B. Funds will be drawn from the Contingency Allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

- A. The Contractor shall include in the Guaranteed Maximum Price the sum of \$10,000.00 as a contingency for unforeseen changes in the scope of work. These funds will only be used for approved change orders to the contract. Any monies not designated for approved Change Orders will be deducted from the contract base bid at the completion of the contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 2300
ALTERNATIVES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Procedures for pricing Alternates.
- B. Documentation of changes to Contract Sum and Contract Time.

1.02 RELATED REQUIREMENTS

- A. Document 00 2113 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.
- B. Document 00 5200 - Agreement Form: Incorporating monetary value of accepted Alternates.

1.03 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

- A. **Alternate Number 1:**
 - 1. Deduct from scope of work all preparation, materials, and labor to complete the specified electrical work as shown in the Construction Drawings and Specifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Construction progress schedule and proposed changes to Contract Time.
- F. Coordination drawings.
- G. Submittals for review, information, and project closeout.
- H. Number of copies of submittals.
- I. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 00 7200 - General Conditions: Dates for applications for payment.
- B. Section 00 7200 - General Conditions: Duties of the Construction Manager.
- C. Section 00 7300 - Supplementary Conditions: Duties of the Construction Manager.
- D. Section 01330 - Weather Delays
- E. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.
- F. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

- A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

1.04 PROJECT COORDINATOR

- A. Project Coordinator: Contractor.
- B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for construction access, traffic, and parking facilities.
- C. During construction, coordinate use of site and facilities through the Project Coordinator.
- D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities. Responsibility for providing temporary utilities and construction facilities is identified in Section 01 1000 - Summary.
- F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
- G. Make the following types of submittals to Steiling Architecture through the Project Coordinator:
 - 1. Requests for Interpretation.
 - 2. Requests for substitution.
 - 3. Shop drawings, product data, and samples.
 - 4. Test and inspection reports.
 - 5. Design data.
 - 6. Manufacturer's instructions and field reports.
 - 7. Applications for payment and change order requests.

8. Progress schedules.
9. Coordination drawings.
10. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. Contractor will schedule a meeting after Notice of Award.
- B. Attendance Required:
 1. Owner.
 2. Steiling Architecture.
 3. General Contractor.
 4. 1 representative from each subcontractor.
- C. Agenda:
 1. Execution of Owner-Contractor Agreement.
 2. Submission of executed bonds and insurance certificates.
 3. Distribution of Contract Documents.
 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 5. Designation of personnel representing the parties to Contract, Owner and Steiling Architecture.
 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Steiling Architecture, Owner, participants, and those affected by decisions made.

3.02 SITE MOBILIZATION MEETING

- A. Contractor will schedule a meeting at the Project Site prior to work commencing.
- B. Attendance Required:
 1. Contractor.
 2. Owner.
 3. Steiling Architecture.
 4. Project Superintendent.
 5. Major subcontractors.
 6. Others as required by Contractor.
- C. Agenda:
 1. Use of premises by Owner.
 2. Owner's requirements.
 3. Construction facilities and controls provided by Owner.
 4. Temporary utilities provided by Owner.
 5. Survey and building layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Application for payment procedures.
 9. Procedures for testing.
 10. Procedures for maintaining record documents.
 11. Requirements for start-up of equipment.
 12. Inspection and acceptance of equipment put into service during construction period.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Steiling Architecture, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Steiling Architecture.
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Maintenance of quality and work standards.
 - 11. Effect of proposed changes on progress schedule and coordination.
 - 12. Other business relating to work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Steiling Architecture, Owner, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216

- A. Within 10 days after date of the Agreement, submit preliminary schedule..
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.
 - 1. Proposed changes in Contract Time.
 - a. Proposed changes in contract Time are to be submitted in writing monthly.
 - b. Fully describing the reasons for the change and effect of the change on the construction schedule, and attach a revised Progress Schedule.
 - c. For a change based on weather-related delay, provide and attach weather data from National Oceanic and Atmospheric Administration (NOAA) as an impartial basis for determining justifiable extensions, or daily work logs which describe actual local weather conditions and impact, subject to approval by Designer. Provide and attach NOAA comparative data on normals, means, and extremes in not already provided in Project Manual.
 - d. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- F. Submit updated schedule with each Application for Payment.

3.05 COORDINATION DRAWINGS

- A. Review drawings prior to submission to Steiling Architecture.

3.06 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
- B. Contractor shall review, correct, and sign stamped approval of all submittals as conforming with standards and design set forth in Contract Documents, prior to submission to Architect
- C. Submit to Steiling Architecture for review for the purpose of checking for quality and conformance with information given and the design concept expressed in the contract documents.
- D. Samples will be reviewed for quality, aesthetic, color, and finish selection.
- E. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.07 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
- B. Submit for Steiling Architecture's knowledge as contract administrator or for Owner.

3.08 SUBMITTALS FOR PROJECT CLOSEOUT

- A. Submit Correction Punch List for Substantial Completion.
- B. Submit Final Correction Punch List for Substantial Completion.
- C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Submittals.
 - 6. Other types as indicated.
- D. Submit for Owner's benefit during and after project completion.

3.09 NUMBER OF COPIES OF SUBMITTALS

- A. Documents for Review:
 - 1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies that Contractor requires, plus one copy that will be retained by Steiling Architecture.
 - 2. Larger Sheets, Not Larger Than 36 x 48 inches: Submit the number of opaque reproductions that Contractor requires, plus one copy that will be retained by Steiling Architecture.
- B. Documents for Information: Submit two copies.

- C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.
- D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Steiling Architecture.
 - 1. After review, produce duplicates.
 - 2. Retained samples will not be returned to Contractor unless specifically so stated.

3.10 SUBMITTAL PROCEDURES

- A. General Requirements:
 - 1. Transmit using approved form.
 - a. Use Form AIA G810.
 - 2. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 - 3. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 - 4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
 - 5. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
 - a. Deliver submittals to Steiling Architecture at business address.
 - b. Send submittals in electronic format via email to Steiling Architecture.
 - c. Upload submittals in electronic form to Electronic Document Submittal Service website.
 - 6. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
 - b. For sequential reviews involving Steiling Architecture's consultants, Owner, or another affected party, allow an additional 7 days.
 - 7. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 - 8. Provide space for Contractor and Steiling Architecture review stamps.
 - 9. When revised for resubmission, identify all changes made since previous submission.
 - 10. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 - 11. Submittals not requested will not be recognized or processed.
- B. Product Data Procedures:
 - 1. Submit only information required by individual specification sections.
 - 2. Collect required information into a single submittal.
 - 3. Do not submit (Material) Safety Data Sheets for materials or products.
- C. Shop Drawing Procedures:
 - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
 - 2. Do not reproduce the Contract Documents to create shop drawings.
 - 3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

END OF SECTION

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**SECTION 01 3216
CONSTRUCTION PROGRESS SCHEDULE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

1.02 RELATED SECTIONS

- A. Section 01 1000 - Summary: Work sequence.

1.03 REFERENCE STANDARDS

- A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

1.04 SUBMITTALS

- A. Within 10 days after date of Agreement, submit preliminary schedule.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
- D. Within 10 days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.
- F. Submit the number of opaque reproductions that Contractor requires, plus two copies that will be retained by Steiling Architecture.
- G. Submit under transmittal letter form specified in Section 01 3000 - Administrative Requirements.

1.05 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Sheet Size: Multiples of 8-1/2 x 11 inches.
- C. Scale and Spacing: To allow for notations and revisions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Identify work of separate stages and other logically grouped activities.
- D. Provide sub-schedules for each stage of Work identified in Section 01 1000 - Summary.
- E. Provide sub-schedules to define critical portions of the entire schedule.
- F. Include conferences and meetings in schedule.
- G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

- H. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, products identified under Allowances, and dates reviewed submittals will be required from Steiling Architecture. Indicate decision dates for selection of finishes.
- I. Indicate delivery dates for owner-furnished products.
- J. Coordinate content with schedule of values specified in Section 01 2000 - Price and Payment Procedures.
- K. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

- A. Participate in joint review and evaluation of schedule with Steiling Architecture at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

3.06 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Steiling Architecture, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

**SECTION 01 3300
WEATHER DELAYS**

PART 1 GENERAL

1.01 EXTENSIONS OF CONTRACT TIME

- A. If the basis exists for an extension of time in accordance with paragraph 8.3 of the Conditions, an extension of item on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed as the Standard Baseline for that month.

1.02 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

- A. The Owner has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined at Standard Baseline of average climatic range for the State of Arkansas.
- B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. **SUSPENSION OF CONSTRUCTION ACTIVITY FOR THE NUMBER OF DAYS EACH MONTH AS LISTED IN THE STANDARD BASELINE IS INCLUDED IN THE WORK AND IS NOT ELIGIBLE FOR EXTENSION OF CONTRACT TIME.**
- C. Standard Baseline is as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	11	8	7	7	6	7	5	4	5	6	11

1.03 ADVERSE WEATHER AND WEATHER DELAY DAYS

- A. Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:
1. Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure
 2. Temperatures that do not rise above 32 degrees F. by 10:00 a.m.
 3. Temperatures that do not rise above that specified for the days construction activity by 10:00 a.m., if any is specified.
 4. Sustained wind in excess of twenty-five (25) miles per hour.
 5. Standing snow in excess of one inch (1.00")
- B. Adverse Weather may include, if appropriate, "dry-out" or "mud" days when all the following conditions are met:
1. For rain days above the standard baseline.
 2. Only if there is a hindrance to site access to Work, such as excavation, backfill, and footings.
 3. At a rate no greater than 1 make-up day for each day or consecutive rain days beyond the standard baseline that total 1 inch or more, liquid measure, unless specifically recommended otherwise by the Designer.
- C. A Weather Delay Day may be counted if adverse weather prevents work on the project for fifty percent (50%) or more of the contractor's scheduled work day, including a weekend day or holiday if Contractor has scheduled construction activity that day.

1.04 DOCUMENTATION AND SUBMITTALS

- A. Submit daily jobsite logs showing which and to what extent construction activities have been affected by weather on a monthly basis.
- B. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Architect at beginning of project.
- C. Use Standard Baseline data provided in this Section when documenting actual delays due to weather in excess of the average climatic range.

- D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for Claims established in paragraph 4.3 of the Conditions.
- E. If an extension of the Contract Time is appropriate, it shall be effected in accordance with the provisions of Article 7 of the Conditions, and the applicable General Requirements.

END OF SECTION

**SECTION 01 4000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. Testing and inspection agencies and services.
- D. Control of installation.
- E. Manufacturers' field services.
- F. Defect Assessment.

1.02 RELATED REQUIREMENTS

- A. Document 00 7200 - General Conditions: Inspections and approvals required by public authorities.
- B. Section 01 3000 - Administrative Requirements: Submittal procedures.
- C. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Test Reports: After each test/inspection, promptly submit two copies of report to Steiling Architecture and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Steiling Architecture, provide interpretation of results.
 - 2. Test report submittals are for Steiling Architecture's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
- C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Steiling Architecture, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- E. Manufacturer's Field Reports: Submit reports for Steiling Architecture's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.

- F. Erection Drawings: Submit drawings for Steiling Architecture's benefit as contract administrator or for Owner.
 - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.

1.04 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 - 1. Testing agency: Comply with requirements of ASTM E 329, ASTM E 543, ASTM C 1021, ASTM C 1077, ASTM C 1093, and ASTM D3740.
 - 2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Steiling Architecture before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Steiling Architecture and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Steiling Architecture and Contractor of observed irregularities or non-compliance of Work or products.
 - 5. Perform additional tests and inspections required by Steiling Architecture.
 - 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 4. Notify Steiling Architecture and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Steiling Architecture.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Steiling Architecture 30 days in advance of required observations.
 1. Observer subject to approval of Steiling Architecture.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.04 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Steiling Architecture, it is not practical to remove and replace the work, Steiling Architecture will direct an appropriate remedy or adjust payment.

END OF SECTION

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**SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Barriers, enclosures, and fencing.
- E. Security requirements.
- F. Vehicular access and parking.
- G. Waste removal facilities and services.

1.02 TEMPORARY UTILITIES

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
- B. Existing facilities may not be used.
- C. New permanent facilities may not be used.
- D. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TELECOMMUNICATIONS SERVICES

- A. Provide, maintain, and pay for cellular telephone service for the project superintendent.

1.04 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

1.05 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

- A. Construction: Contractor's option.

1.07 SECURITY

- A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.

1.08 VEHICULAR ACCESS AND PARKING

- A. Coordinate access and haul routes with governing authorities and Owner.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Designated existing on-site roads may be used for construction traffic.

- E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.09 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. Pick up trash and debris from construction and place in suitable containers with lids daily prior to leaving site.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition.
- D. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**SECTION 01 6000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Document 00 2113 - Instructions to Bidders: Product options and substitution procedures prior to bid date.
- B. Section 01 4000 - Quality Requirements: Product quality monitoring.
- C. Section 01 7419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.03 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.
- B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.
- C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.
- D. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Use of products having any of the following characteristics is not permitted:
 - 1. Made of wood from newly cut old growth timber.
- C. Where other criteria are met, Contractor shall give preference to products that:
 - 1. Are extracted, harvested, and/or manufactured closer to the location of the project.
 - 2. Have longer documented life span under normal use.

3. Result in less construction waste. See Section 01 7419
- D. Products with Recycled Content:
 1. Specific Product Categories: Provide recycled content as specified elsewhere.
- E. Urea-Formaldehyde Prohibition:
 1. Overall Project Requirement: Provide composite wood and agrifiber products having no added urea-formaldehyde resins.
 - a. Require each installer to certify compliance and submit product data showing product content.
 2. Specific Product Categories: Comply with limitations specified elsewhere.

2.03 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

- A. Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period and the documents required. Comply with requirements specified in Section 00 2113.
- B. Substitutions will be considered when a product, through no fault of the Contractor, becomes unavailable or unsuitable due to regulatory change.
- C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- D. A request for substitution constitutes a representation that the submitter:
 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 2. Agrees to provide the same warranty for the substitution as for the specified product.
 3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
 4. Waives claims for additional costs or time extension that may subsequently become apparent.
 5. Agrees to reimburse Owner and Steiling Architecture for review or redesign services associated with re-approval by authorities.
- E. Substitution Submittal Procedure (after contract award):
 1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 3. All submittals must be marked to indicate specific items for consideration. Unmarked submittals will be returned without review.
 4. Steiling Architecture will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 7419.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Provide off-site storage and protection when site does not permit on-site storage or protection.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Do not store products directly on the ground.
- J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- K. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- L. Prevent contact with material that may cause corrosion, discoloration, or staining.
- M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- N. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

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**SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Requirements for alterations work, including selective demolition.
- C. Pre-installation meetings.
- D. Cutting and patching.
- E. Cleaning and protection.
- F. Demonstration and instruction of Owner personnel.
- G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- H. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.
 - 6. Include in request:
 - a. Identification of Project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.
 - d. Description of proposed work and products to be used.
 - e. Alternatives to cutting and patching.
 - f. Effect on work of Owner or separate Contractor.
 - g. Written permission of affected separate Contractor.
 - h. Date and time work will be executed.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

- A. For demolition work, employ a firm specializing in the type of work required.
- B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State of Arkansas.

1.05 PROJECT CONDITIONS

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
 - 1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
- E. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
 - 1. Outdoors: Limit conduct of especially noisy exterior work to 8 am to 5 pm.
- F. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.06 COORDINATION

- A. See Section 01 1000 for occupancy-related requirements.
- B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- C. Notify affected utility companies and comply with their requirements.
- D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Steiling Architecture 1 week in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Steiling Architecture, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Steiling Architecture of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Steiling Architecture the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Steiling Architecture.
- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 2. Grid or axis for structures.
 3. Building foundation, column locations, ground floor elevations.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 1. Complete the work.
 2. Fit products together to integrate with other work.
 3. Provide openings for penetration of mechanical, electrical, and other services.
 4. Match work that has been cut to adjacent work.
 5. Repair areas adjacent to cuts to required condition.
 6. Repair new work damaged by subsequent work.
 7. Remove samples of installed work for testing when requested.
 8. Remove and replace defective and non-complying work.
- C. Execute cutting and patching to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.
- D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.
- I. Patching:
 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 2. Match color, texture, and appearance.

- 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
- J. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- K. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.
- L. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.
- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

3.11 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
 - 1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Replace filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to Steiling Architecture.
- B. Project Coordinator shall conduct preliminary walk-thru inspection of project and provide to Architect a written list of items for completion or correction. Completion/correction of these items shall be completed prior to request for Architect's inspection for Substantial Completion.
- C. Notify Steiling Architecture when work is considered ready for Steiling Architecture's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Steiling Architecture's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Steiling Architecture's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Steiling Architecture.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

- G. Notify Steiling Architecture when work is considered finally complete and ready for Steiling Architecture's Substantial Completion final inspection.
- H. Complete items of work determined by Steiling Architecture listed in executed Certificate of Substantial Completion.

3.14 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

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**SECTION 01 7800
CLOSEOUT SUBMITTALS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. Section 00 7200 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.
- D. Individual Product Sections: Specific requirements for operation and maintenance data.
- E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Steiling Architecture with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Steiling Architecture will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Steiling Architecture comments. Revise content of all document sets as required prior to final submission.
 - 4. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.

- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- F. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.
 - 4. Complete nomenclature and model number of replaceable parts.

- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- D. Prepare data in the form of an instructional manual.
- E. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- F. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- G. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Steiling Architecture, Consultants, Contractor and subcontractors, with names of responsible parties.
- H. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- I. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- J. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- K. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- L. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- M. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Steiling Architecture, Contractor, Subcontractors, and major equipment suppliers.
 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.
- N. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.
- O. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Steiling Architecture, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

END OF SECTION

SECTION 02 4100 DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes. Refer to construction drawings for additional information.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 1000 - Summary: Sequencing and staging requirements.
- C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- D. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- E. Section 07 0150.19 - Preparation for Re-Roofing: Removal of existing roofing, roof insulation, flashing, trim, and accessories.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

- A. BASE BID PROPOSAL:
 - 1. Complete demolition of designated portion of existing metal building, including complete wood framed roof system, except for existing concrete floor slab to remain.
 - 2. Demolition of metal roof and wall panels back to existing red-iron building framing on remainder of the building. Includes demolition of overhead and walk doors and windows.
 - 3. Construct new exterior wall to enclose north side of existing building as described on bid documents.
 - 4. Provide and install new prefinished metal roof panels and wall panels on existing building frame / subframe. Includes all new trims, fascias, gutters, downspouts accessories, etc. in standard color-group 2. Includes new overhead doors, walk-thru doors, frames and trim.
- B. Existing building frame / subframe system to be cleaned and prepped for new paint finish. Remove all empty conduit, unused wiring, unused metal supports and strapping, etc. Patch and seal holes in exposed wall surfaces.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

3. Provide, erect, and maintain temporary barriers and security devices.
 4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 6. Do not close or obstruct roadways or sidewalks without permit and owner's permission.
 7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
 - C. Protect existing structures and other elements that are not to be removed.
 1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
 - D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
 - E. If hazardous materials are discovered during removal operations, stop work and notify Steiling Architecture and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
- H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
 1. Verify that construction and utility arrangements are as indicated.
 2. Report discrepancies to Steiling Architecture before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from other areas that are still occupied.
 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 .

- C. Remove existing work as indicated and as required to accomplish new work.
 - 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction specified.
 - 2. Remove items indicated on drawings.
- D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
 - 1. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
 - 2. Verify that abandoned services serve only abandoned facilities before removal.
 - 3. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.
- E. Protect existing work to remain.
 - 1. Prevent movement of structure; provide shoring and bracing if necessary.
 - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
 - 3. Repair adjacent construction and finishes damaged during removal work.
 - 4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

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**SECTION 05 4000
COLD-FORMED METAL**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cold formed steel sub-framing shapes used as a base for support of new roofing system and metal wall panels, as detailed and specified on the contract drawings.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood blocking and miscellaneous framing.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Head and sill flashings.
- C. Section 07 6200 - Sheet Metal Flashing and Trim: Head and sill flashings.
- D. Section 07 9005 - Joint Sealers.

1.03 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. ICC-ES AC308 - Acceptance Criteria for Water-Resistive Barriers; ICC Evaluation Service, Inc.; 2013.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with work of other sections that is to be installed in or adjacent to the metal framing system, including but not limited to structural anchors, cladding anchors, utilities, insulation, and firestopping.

1.05 SUBMITTALS

- A. Product Data: Provide data on standard framing members; describe materials and finish, product criteria, limitations.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, and with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Framing:
 - 1. CEMCO: www.cemcosteel.com/#sle.
 - 2. ClarkDietrich Building Systems: www.clarkdietrich.com/#sle.
 - 3. Jaimes Industries: www.jaimesind.com/#sle.
 - 4. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Framing Connectors and Accessories:
 - 1. Same manufacturer as metal framing.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FRAMING MATERIALS

- A. Studs and Track: ASTM C955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height.
 - 1. Gage and Depth: As required to meet specified performance levels.
 - 2. Gage and Depth: As indicated on drawings.
 - 3. Galvanized in accordance with ASTM A653/A653M, G90/Z275 coating.

4. Provide components fabricated from ASTM A1008/A1008M Designation SS (structural steel).
- B. Joists and Purlins: Fabricated from ASTM A653/A653M steel sheet, with G90/Z275 hot dipped galvanized coating.
 1. Base Metal: As required to meet specified performance levels within maximum depths indicated.
- C. Joists and Purlins: Fabricated from ASTM A1008/A1008M Designation SS (structural steel) sheet, shop painted.
 1. Gage and Depth: As indicated on drawings.
- D. Framing Connectors: Factory-made, formed steel sheet.
 1. Material: ASTM A653/A653M SS Grade 33 and 40 (minimum), with G90/Z275 hot dipped galvanized coating for base metal thickness less than 10 gage, 0.1345 inch, and factory punched holes and slots.
 2. Fixed Connections: Provide non-movement connections for tie-down to foundation, floor-to-floor tie-down, roof-to-wall tie-down, joist hangers, gusset plates, and stiffeners.
 3. Wall Stud Bridging Connections: Provide mechanical load-transferring devices that accommodate wind load torsion and weak axis buckling induced by axial compression loads. Provide bridging connections where indicated on the drawings.

2.03 FASTENERS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A153/A153M.
- B. Anchorage Devices: Powder actuated.

2.04 FASTENERS

- A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A153/A153M.
- B. Anchorage Devices: Powder actuated.

END OF SECTION

**SECTION 06 1000
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-structural dimension lumber framing.
- B. Rough opening framing for doors, glazing and wall openings.
- C. Roof-mounted curbs.
- D. Roofing nailers.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. Communications and electrical room mounting boards.
- H. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- C. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2015a.
- D. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2013.
- E. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- G. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood Protection Association; 2003.
- H. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.
- I. PS 1 - Structural Plywood; 2009.
- J. PS 20 - American Softwood Lumber Standard; 2010.
- K. SPIB (GR) - Grading Rules; 2014.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.04 QUALITY ASSURANCE

- A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
 - 1. Acceptable Lumber Inspection Agencies: SPIB, WCLB, and WWPA.
 - 2. Lumber of other species or grades, or graded by other agencies, is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
- B. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. Species: Southern Pine, unless otherwise indicated.
 - 2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Provide sustainably harvested wood; see Section 01 6000 - Product Requirements for requirements.

2.02 DIMENSION LUMBER

- A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: Kiln-dry or MC15.
- D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWP A U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
- B. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWP A standards.
- C. Preservative Pressure Treatment of Plywood Above Grade: AWP A Use Category UC2 and UC3B, Commodity Specification F (Treatment C9) using waterborne preservative to 0.25 lb/cu ft retention.
 - 1. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
 - 2. Treat plywood in contact with roofing, flashing, or waterproofing.
 - 3. Treat plywood in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

- B. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- C. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- D. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with fascia construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.
- C. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- D. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.06 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

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**SECTION 07 0150.19
PREPARATION FOR RE-ROOFING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal of existing metal roofing in preparation for replacement prefinished standing seam roof covering, including prefinished trim, gutters and downspouts.
- B. Removal of existing flashing and counterflashings.
- C. Temporary roofing protection.

1.02 RELATED REQUIREMENTS

- A. Section 07 5400 - Thermoplastic Membrane Roofing.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Replacement of flashing and counterflashings.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with affected mechanical and electrical work associated with roof penetrations.
- B. Preinstallation Meeting: Convene one week before starting work of this section.
 - 1. Attendees:
 - a. Steiling Architecture.
 - b. Contractor.
 - c. Owner.
 - d. Installer.
 - e. Roofing system manufacturer's field representative.
 - f. Inspection and Testing Agency Representatives.
- C. Schedule work to coincide with commencement of installation of new roofing system.

1.04 QUALITY ASSURANCE

- A. Materials Removal Company Qualifications: Company specializing in performing work of type specified with at least three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 FIELD CONDITIONS

- A. Existing Roofing System: Metal roofing panels.
- B. Maintain continuous temporary protection prior to and during installation of new roofing system.
- C. Verify that occupants have been evacuated from building areas if work on structurally impaired roof decking is scheduled to begin.

1.06 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 COMPONENTS

- A. Refer to following sections for additional information on components relating to this work:
 - 1. Remove existing roofing system in preparation for new roofing system as indicated on drawings.
 - 2. Remove existing flashing and counterflashings in preparation for re-roofing over the existing roof covering, refer to Section 07 6200 for material requirements.

2.02 MATERIALS

- A. Temporary Protection: Sheet fiber reinforced plastic; provide weights to retain sheeting in position.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing roof surface has been cleared of materials being removed from existing roofing system and ready for next phase of work as required.

3.02 PREPARATION

- A. Sweep roof surface clean of loose matter.
- B. Remove loose refuse and dispose of properly off-site.

3.03 MATERIAL REMOVAL

- A. Remove existing metal roof panels completely.
- B. Remove metal flashings, counter flashings, gutters, downspouts, and trim.
- C. Scrape and clean remaining existing steel structure and sub-framing and prep for new paint finish.

3.04 INSTALLATION

- A. Coordinate scope of this work with requirements for installation of new metal roof and wall systems, refer to Section 07 5100 for additional requirements.

3.05 FIELD QUALITY CONTROL

- A. Independent agency inspection and testing will be provided under provisions of Section 01 4000.
- B. The drawings identify the approximate limits to material removal.

3.06 PROTECTION

- A. Provide temporary protective sheeting over uncovered deck surfaces.
- B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights.
- C. Provide for surface drainage from sheeting to existing drainage facilities.
- D. Do not permit traffic over unprotected or repaired deck surface.

END OF SECTION

SECTION 07 2110
SIMPLE SAVER ROOF AND WALL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof and Wall Insulation for roof and perimeter of building:
 - 1. Simple Saver Insulation System:
 - a. Roof: Two layer thermal fiberglass blanket insulation, interior vapor barrier liner fabric, support strapping, fasteners and sealants, with thermal break materials where not provided by roof system.
 - 1) Enclosed Building Roof areas.
 - (a) Liner, support straps, edge trim, and fasteners: **Color: Standard White**
 - b. Roof Insulation for all roof areas NOT at enclosed building areas:
 - 1) 3 inch vinyl backed blanket type fiberglass building insulation over purlins under roof panels. **Color: Standard White**
 - 2. Exterior Walls: One layer thermal fiberglass insulation, interior vapor barrier liner fabric, support strapping, fasteners, and sealants, with thermal break materials at all metal surfaces. Vinyl liner at exterior wall areas: **"Syseal Fabric Liner", Color: White**
 - a. Installation of Fast-R Hangers for support of exterior wall insulation.
 - b. Installation of Quik-Stop Thermal Break, insulative foam thermal break with adhesive back, between metal wall panels and metal sub-structure with single layer insulation systems.

1.02 RELATED SECTIONS

- A. Division 21 - Fire Suppression
- B. Division 23 - HVAC
- C. Division 26 - Electrical Systems

1.03 REFERENCES

- A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2004.
- B. ASTM E 96 - Standard Test Method for Water Vapor Transmission of Materials in Sheet Form (Procedure B).
- C. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Insulation for Light Frame Construction and Manufactured Housing.
- D. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- E. UL 723 - Test for Surface Burning Characteristics of Building Materials.
- F. ASTM C 1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

1.04 PERFORMANCE REQUIREMENTS

- A. Provide insulating system forming a continuous vapor barrier inside of building purlins, girts, and insulation to provide complete isolation from inside conditioned air.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's standard details and catalog data demonstrating compliance with referenced standards; installation instructions.
- C. Shop Drawings: Typical installation details illustrating relationship of insulating materials to surrounding construction.

- D. Samples of insulation, liner fabric with extrusion welded seam, and painted steel support straps.

1.06 QUALITY ASSURANCE

- A. Provide on-site training by manufacturer if requested, to ensure proper installation.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Provide materials in original manufacturer's packages.
- B. Inspect materials for damage or shortage upon delivery.
- C. Store products indoors and protect from moisture, construction traffic, damage, and theft.

1.08 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide insulation manufacturer's warranty that the actual thermal performance of the insulation system will be equal to the specified insulation level when properly installed at specified thickness and sealed against air and water vapor infiltration. At the manufacturer's option, correct deficiencies of thermal performance or credit to the Project Owner the percentage of the insulation system material cost equal to the percentage of the deficiency.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. **ROOF / EXTERIOR WALL INSULATION:**
 - 1. Acceptable Manufacturer - "Simple Saver" Insulation System, Liner Fabric, and Accessories:
Thermal Design, Inc; P.O. Box 468, 600 N. Main Street, Madison, NE 68748. Tel: (800) 255-0776.
- B. Substitutions: See Section 01600 - Product Requirements.

2.02 ROOF/EXTERIOR WALL INSULATION: SIMPLE SAVER INSULATION SYSTEM

- A. Insulation: Formaldehyde Free Fiberglass blanket or batt complying with FS HH-I-558, Form B, Type I; with the following R-value and nominal thickness:
 - 1. **At Roof: Two layer system; R35;** Vinyl barrier bottom liner; 8 inch unfaced between purlins, with 3 inch blanket over top of purlins beneath roof panels.
 - 2. **At Walls: One layer: R25 min.:** Vinyl barrier liner; 8 inch insulation between girts, with vinyl liner exposed to room.
- B. Vapor Barrier Liner Fabric: Syseal abric woven, reinforced, high-density polyethylene yarns coated on both sides with a continuous white or colored polyethylene coatings, as follows:
 - 1. Product complies with ASTM C 1136, Types I through Types VI.
 - 2. Perm rating: 0.02 for fabric and for seams in accordance with ASTM E 96.
 - 3. Flame/Smoke Properties:
 - a. 5/10 in accordance with ASTM E 84.
 - b. Self-extinguishes with field test using matches or butane lighter.
 - 4. Size and seaming: Manufactured in large custom pieces by extrusion welding from roll goods, and fabricated to substantially fit defined building area with minimum practicable job site sealing.
 - 5. Stapled seams and hot air welded seams are not acceptable.
 - 6. Factory-folded to allow for rapid pull-out on strap support system.
 - 7. Fabric: Syseal FP.
 - 8. Color: As scheduled in paragraph 1.01 above.
- C. Vapor Barrier Lap Sealant: Solvent-based, Simple Saver polyethylene fabric adhesive.
- D. Vapor Barrier Tape: Double-sided sealant tape 3/4 inch wide by 1/32 inch thick.

- E. Vapor Barrier Patch Tape: Single-sided, adhesive backed sealant tape 3 inches wide made from same material as Syseal type liner fabric.
- F. Thermal Breaks: 3/8 inch thick x 3 inch wide white, closed-cell polyethylene foam with pre-applied adhesive film and peel-off backing and polystyrene snap-on thermal blocks.
- G. Straps: 100 KSI minimum yield tempered, high-tensile-strength steel, primed, and painted specified finish color on the exposed side.
 - 1. Size: Not less than 0.020 inch thick by 1 inch by continuous length.
 - 2. Color: as scheduled in paragraph 1.01 above.
- H. Edge Trim: Pre-Finished Aluminum: ASTM B209 (ASTM B209M)[<>]; 0.032 inch (0.8 mm) thick; plain finish shop pre-coated with modified silicone coating.
 - 1. Prefinished 2" x 2" aluminum angle. Standard length: 10'-0" minimum.
 - 2. Modified Polyester Coating: Pigmented Organic Coating System, AAMA 2603; baked enamel finish system
 - 3. Color: To match color of system straps.
- I. Fasteners:
 - 1. For light gauge steel: #12 x 3/4 inch plated Tek 2 type screws, painted to match specified color.
 - 2. For heavy gauge steel: #12 x 1-1/2 inch plated Tek 4 type screws, painted to match specified color.
 - 3. For wood, concrete, other materials: As recommended by manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that building structure including all bracing and any concealed building systems such as electrical conduits are completed and approved prior to installing liner system and insulation in the structure.
- B. Correct any unsatisfactory conditions before proceeding.
- C. If conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION - GENERAL

- A. Install pre-engineered building insulation system in accordance with manufacturer's installation instructions and the approved shop drawings.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Install in exterior spaces without gaps or voids. Do not compress insulation.
- D. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- E. Fit insulation tight in spaces and tight to exterior side of sealed liner fabric and around mechanical and electrical services within plane of insulation.

3.03 INSULATION INSTALLATION

- A. Steel Straps:
 - 1. Cut straps to length and install in a bi-directional pattern with horizontal spacing at purlins (5'-0" o.c.) and vertical spacings at nominal 2'-0" o.c. Indicate designated spacings on shop drawing submittals.
 - 2. Tension straps to required value.
- B. Vapor Barrier Fabric:
 - 1. Install vapor barrier fabric in large one-piece custom fabricated pieces to substantially fit defined building areas with minimum practicable job site sealing.
 - 2. Position pre-folded fabric on the strap platform along one eave purlin.

3. Clamp the two bottom corners at the eave and also centered on the bay.
 4. Pull the other end of the pleat-folded fabric across the building width on the strap platform, pausing only at the ridge to fasten the straps and fabric in position where plane of roof changes and to release temporary fasteners on the opposite ridge purlin.
 5. Once positioned, install fasteners from the bottom side at each strap/purlin intersection.
 6. Trim edges and seal along the rafters.
 7. All seams must be completely sealed and stapled seams not acceptable.
- C. Insulation:
1. Unpack and shake to a thickness exceeding the specified thickness.
 2. Ensure that cavities are filled completely with insulation.
 3. Place on the vapor barrier liner fabric without voids or gaps.
 4. Place top layer of insulation over and perpendicular to the purlins without voids or gaps, as roof sheathing is applied.
 5. Place thermal block on top of purlins.
 6. Place new insulation between purlins at the required thickness for the R-value specified.
- D. Seal vapor barrier fabric to the wall fabric and elsewhere as required to provide a continuous vapor barrier.
- E. Edge Trim: Install edge trim continuous along all areas where exposed roof insulation system meets wall partitions.

3.04 CLEANING

- A. Clean dirt and exposed sealant from the exposed vapor barrier fabric.
- B. Remove scraps and debris from the site.

3.05 PROTECTION

- A. Protect system products until the completion of installation.
- B. Repair or replace damaged products before completion of insulation system installation.

END OF SECTION

**SECTION 07 4113
METAL ROOF PANELS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural roofing system of preformed steel panels.
- B. Attachment system.
- C. Finishes.
- D. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 2110 - Simple Saver Roof And Wall Insulation
- B. Section 07 4213 - Metal Wall Panels: Preformed wall panels.
- C. Section 07 9005 - Joint Sealers: Field-installed sealants.

1.03 REFERENCE STANDARDS

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- C. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
- D. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- E. ASTM C1363 - Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus; 2011.
- F. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2010.
- G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- H. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2011.
- I. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2012).
- J. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference; 1995 (Reapproved 2011).
- K. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2012.
- L. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Storage and handling requirements and recommendations.
 - 2. Installation methods.
 - 3. Specimen warranty.
- C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.

2. Include structural analysis signed and sealed by qualified structural engineer, indicating compliance of roofing system to specified loading conditions.
- D. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.
 1. Include typical panel joint in sample.
 2. Include typical fastening detail.
- F. Manufacturer Qualification Statement: Provide documentation showing metal roof panel fabricator is accredited under IAS AC472.
- G. Test Reports: Indicate compliance of metal roofing system to specified requirements.
- H. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
 1. Not less than 5 years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least 5 years of documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Roofing System Installers Warranty: Installer shall provide a two (2) year Installer's Warranty whereby all deficiencies in installed work within a two (2) year period beginning on the date of Substantial Completion shall be corrected at no additional cost to the owner.
- C. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of twenty years from Date of Substantial Completion.
- D. Weather Tightness Warranty: The entire installation (including but not limited to sub-framing, clips, panels, fasteners, rakes, eave trim, ridge and valley flashings, roof to wall flashings, as well as, all materials specified as supplied by the manufacturer shall be guaranteed Weather Tight for a minimum of twenty (20) years by the roofing system manufacturer beginning from the Date of Substantial Completion of the project. Roofing system manufacturer shall provide written Single Source, No Dollar Limit Warranty for specified time, agreeing to repair or replace defective materials and/or workmanship during the warranty period at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Design is based on Standing Seam Battenlok HS Panels, manufactured by MBCI.

2.02 STRUCTURAL METAL ROOF PANELS

- A. Structural Metal Roofing: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:

1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed $L/180$ of span length(L) when tested in accordance with ASTM E1592.
 2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
 3. Wind Uplift: Class 90 wind uplift resistance of UL 580.
 4. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.
- B. Metal Panels: Factory-formed panels with factory-applied finish.
1. Type: Single skin, uninsulated.
 2. Steel Panels:
 - a. Zinc-coated SS (structural steel) sheet complying with ASTM A653/A653M; minimum G60 galvanizing.
 - b. Steel Thickness: Minimum 24 gage (0.024 inch).
 3. Profile: Standing seam, with minimum 2.0 inch seam height; concealed fastener system for field seaming with special tool.
 4. Texture: Smooth, with intermediate ribs for added stiffness.
 5. Length: Full length of roof slope, without lapped horizontal joints.
 6. Width: Maximum panel coverage of 18 inches.

2.03 ATTACHMENT SYSTEM

- A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 FABRICATION

- A. Panels: Provide factory fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

2.05 FINISHES

- A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss to match sample.

2.06 ACCESSORIES

- A. Miscellaneous Sheet Metal Items: Provide flashings, trim, moldings, closure strips, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.
- C. Sealants:
1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
 2. Concealed Sealant: Non-curing butyl sealant or tape sealant.

2.07 FABRICATION

- A. Panels: Fabricate and finish panels and accessory items at factory, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

- B. If substrate preparation is the responsibility of another installer, notify Steiling Architecture of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Verify existing frame and sub-frame components have been cleaned and tested acceptable to receive new roofing system and new finish painting on exposed interior surfaces.
- B. Verify existing roof sub-framing is complete and meets all warranty requirements for support of new roof panel system.
- C. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- D. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- E. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- F. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
 - 1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
 - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.
- C. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.
 - 1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by the panel manufacturer.

3.04 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

- A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

**SECTION 07 4213
METAL WALL PANELS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Manufactured metal panels for re-cover of existing walls, with related flashings and accessory components.

1.02 RELATED REQUIREMENTS

- A. Section 05 4000 - Cold-Formed Metal: Miscellaneous metal shapes.
- B. Section 07 9005 - Joint Sealers.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010 (Reapproved 2015).
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate dimensions, layout, joints, construction details, profile, and methods of anchorage.
- C. Manufacturer's Qualification Statement.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- B. Store prefabricated material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.
- C. Prevent contact with materials that may cause discoloration or staining of products.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion for degradation of panel finish, including color fading caused by exposure to weather.
- C. Correct defective work within a five year period after Date of Substantial Completion, including defects in water tightness and integrity of seals.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design:
 - 1. MBCI; FW-120 Panel - Concealed Fastener: www.mbc.com/#sle.

2.02 MANUFACTURED METAL PANELS

- A. Wall Panel System: Factory fabricated prefabricated metal panel system, site assembled.
 - 1. Provide exterior panels for concealed fastening over existing and new metal wall framing.

2. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.
 3. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
 4. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.
 5. Corners: Factory-fabricated in one continuous piece with minimum 2 inch returns.
 6. Exterior Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.
 7. Exterior Panel Back Coating: Panel manufacturer's standard polyester wash coat.
- B. Exterior Wall Panels:
1. Type 1:
 - a. Profile: Vertical; style as indicated.
 - b. Side Seams: Interlocked, sealed with continuous gaskets.
 - c. Material: Precoated steel sheet, 22 gage, 0.0299 inch minimum thickness.
 - d. Panel Width: 12 inches.
 - e. Color: As selected by Steiling Architecture from manufacturer's full line of standard Kynar 500 colors..
- C. Interior Liner Panels:
1. Profile: Vertical.
 2. Side Seams: Lapped, sealed with continuous bead of sealant.
 3. Panel Width: 12 inches.
 4. Color: As selected by Steiling Architecture from manufacturer's standard line.
- D. Internal and External Corners: Same material, thickness, and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles.
- E. Expansion Joints: Same material, thickness and finish as exterior sheets; 22 gage, 0.0299 inch thick; manufacturer's standard brake formed type, of profile to suit system.
- F. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.
- G. Anchors: Galvanized steel.

2.03 MATERIALS

- A. Precoated Steel Sheet: Hot-dipped galvanized steel sheet, ASTM A653/A653M, Structural Steel (SS) or Forming Steel (FS), with G90/Z275 coating; continuous coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.
- B. Exterior Finish Coating: Panel manufacturer's standard polyvinylidene fluoride (PVF) top coat, over epoxy primer.
- C. Panel Back Coating: Panel manufacturer's standard polyester wash coat.
- D. Select materials with surface flatness, smoothness, and lack of surface blemishes where exposed to view in finished system.

2.04 FINISHES

- A. Interior Application, Panel Finish: Panel manufacturer's standard siliconized polyester coating, top coat over recommended primer.
- B. Custom Fluoropolymer Coating System: Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness (DFT) of 0.9 mil; color and gloss as selected by Architect..

2.05 ACCESSORIES

- A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant.

- B. Sealants: Specified in Section 07 9005. Manufacturer's standard type suitable for use with installation of system; non-staining; color as selected.
- C. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized. Fastener cap same color as exterior panel.
- D. Field Touch-up Paint: As recommended by panel manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that building framing members are ready to receive panels.

3.02 PREPARATION

- A. Install subgirts perpendicular to panel length, securely fastened to substrates and shimmed and leveled to uniform plane. Space at intervals indicated.

3.03 INSTALLATION

- A. Install panels on walls in accordance with manufacturer's instructions.
- B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.
- C. Fasten panels to structural supports; aligned, level, and plumb.
- D. Locate joints over supports.
- E. Provide expansion joints where indicated.
- F. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.04 TOLERANCES

- A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
- B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.05 CLEANING

- A. Remove site cuttings from finish surfaces.
- B. Remove protective material from wall panel surfaces.
- C. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

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**SECTION 07 6200
SHEET METAL FLASHING AND TRIM**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including prefinished copings, flashings, counterflashings, gutters, downspouts, and other items indicated on the drawings.
- B. Gutters and Downspouts specified in Section 07 7123 - Manufactured Gutters and Downspouts.
- C. Sealants for joints within sheet metal fabrications.
- D. Work of this Section shall be performed and warranted by Roof System installer as a complete watertight system.
- E. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 - Rough Carpentry: Wood blocking for batten seams.
- B. Section 07 7123 - Manufactured Gutters and Downspouts.
- C. Section 07 9005 - Joint Sealers.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2015.
- C. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- E. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.
- F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- G. CDA A4050 - Copper in Architecture - Handbook; current edition.
- H. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE

- A. All work under this section shall be installed by Roofing Contractor.
- B. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.
- C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.06 PRE-INSTALLATION CONFERENCE

- A. Convene one week before starting work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
 - 1. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: As selected by Steiling Architecture from manufacturer's full colors.
- B. Pre-Finished Aluminum: ASTM B 209 (ASTM B 209M); 0.032 inch thick; plain finish shop pre coated with fluoropolymer coating of color as selected.
 - 1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; custom color to match approved sample.
 - 2. Color: As selected by Steiling Architecture from manufacturer's full colors.
- C. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gage, (0.0156 inch) thick; smooth No. 4 - Brushed finish.

2.02 ACCESSORIES

- A. Fasteners: Galvanized steel , with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Protective Backing Paint: Zinc molybdate alkyd.
- D. Sealant: Type specified in Section 07 9005.
- E. Plastic Cement: ASTM D4586, Type I.
- F. Reglets: Prefinished Surface mounted type, galvanized steel ; face and ends covered with plastic tape .

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Insert flashings into reglets to form tight fit; secure in place with lead wedges; pack remaining spaces with lead wool; seal flashings into reglets with sealant.
- B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- C. Apply plastic cement compound between metal flashings and felt flashings.
- D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- E. Seal metal joints watertight.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION

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**SECTION 07 7123
MANUFACTURED GUTTERS AND DOWNSPOUTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pre-finished aluminum gutters and downspouts.
 - 1. Gutters and downspouts shall be sized by roof system manufacturer to exceed requirements of Arkansas Fire Prevention Code, current edition.
- B. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - Sheet Metal Flashing and Trim.
- B. Section 09 9000 - Paints and Coatings

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2012.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2013.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- D. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).
- E. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Comply with applicable code for size and method of rain water discharge.

1.05 WARRANTY

- A. Complete system of gutters, downspouts, fascia, and trim shall be included in the twenty (20) year Weathertightness Warranty required from the Roof System manufacturer(s).

1.06 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.
- C. Product Data: Provide data on prefabricated components.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- B. Prevent contact with materials that could cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pre-Finished Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 24 gauge thick base metal, with factory pre-coated finish, scheduled below.
 - 1. Modified Silicone Polyester Coating: Pigmented Organic Coating System, AAMA 2603; baked enamel finish system; color as scheduled.

2.02 COMPONENTS

- A. Gutters: Profile as indicated: Obtain profile approval from Architect prior to beginning work.
- B. Downspouts: SMACNA Rectangular profile:

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Manufactured Gutters and

Downspouts

BRTC Pocahontas Old Welding Shop Renovation

- C. Anchors and Supports: Profiled to suit gutters and downspouts.
 - 1. Anchoring Devices: In accordance with SMACNA requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.
- D. Fasteners: Same material and finish as gutters and downspouts, with soft neoprene washers.

2.03 ACCESSORIES

- A. Splash Pads: Precast concrete type, size and profiles to match existing; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.

2.04 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

2.05 FINISHES

- A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that surfaces are ready to receive work.

3.02 PREPARATION

- A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- C. Set splash pads under downspouts.

END OF SECTION

SECTION 07 9005 JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Precompressed foam sealers.

1.02 RELATED REQUIREMENTS

- A. Section 07 2500 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders:
- B. Section 08 8000 - Glazing: Glazing sealants and accessories.
- C. Section 09 2116 - Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; 2014.
- B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.
- C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.
- D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
- E. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005 (Reapproved 2011).
- F. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2005 (Reapproved 2010).

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.

1.05 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Gunnable and Pourable Sealants:
 - 1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com/#sle.
 - 2. Bostik Inc: www.bostik-us.com/#sle.
 - 3. Dow Corning Corporation: www.dowcorning.com/#sle.
 - 4. Hilti, Inc: www.us.hilti.com/#sle.
 - 5. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com/#sle.
 - 6. Pecora Corporation: www.pecora.com/#sle.
 - 7. Red Devil: www.reddevil.com.
 - 8. Tremco Global Sealants: www.tremcosealants.com/#sle.
 - 9. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
 - 10. W.R. Meadows, Inc: www.wrmeadows.com/#sle.
 - 11. Substitutions: See Section 01 6000 - Product Requirements.
- B. Silicone Sealants:
 - 1. Bostik Inc: www.bostik-us.com.
 - 2. GE Plastics: www.geplastics.com.
 - 3. Pecora Corporation: www.pecora.com.

4. BASF Construction Chemicals-Building Systems: www.chemrex.com.
 5. Substitutions: See Section 01 6000 - Product Requirements.
- C. Polyurethane Sealants:
1. Bostik Inc: www.bostik-us.com.
 2. Pecora Corporation: www.pecora.com.
 3. BASF Construction Chemicals-Building Systems: www.chemrex.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.
- D. Polysulfide Sealants:
1. Pecora Corporation: www.pecora.com.
 2. BASF Construction Chemicals-Building Systems: www.chemrex.com.
 3. Substitutions: See Section 01 6000 - Product Requirements.
- E. Acrylic Sealants:
1. Tremco Global Sealants: www.tremcosealants.com.
 2. Substitutions: See Section 01 6000 - Product Requirements.
- F. Butyl Sealants:
1. Bostik Inc: www.bostik-us.com.
 2. Pecora Corporation: www.pecora.com.
 3. Substitutions: See Section 01 6000 - Product Requirements.
- G. Acrylic Emulsion Latex Sealants:
1. Bostik Inc: www.bostik-us.com.
 2. Pecora Corporation: www.pecora.com.
 3. BASF Construction Chemicals-Building Systems: www.chemrex.com.
 4. Substitutions: See Section 01 6000 - Product Requirements.
- H. Preformed Compressible Foam Sealers:
1. EMSEAL Joint Systems, Ltd: www.emseal.com/#sle.
 2. Sandell Manufacturing Company, Inc: www.sandellmfg.com/#sle.
 3. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SEALANTS

- A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
- B. General Purpose Exterior Sealant: Acrylic, solvent release curing; ASTM C920, Grade NS, Class 12-1/2, Uses M, G, and A; single or multi- component.
1. Applications: Use for:
 - a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
- C. Exterior Expansion Joint Sealer: Precompressed foam sealer; urethane with water-repellent;
1. Size as required to provide weathertight seal when installed.
 2. Provide product recommended by manufacturer for traffic-bearing use.
 3. Applications: Use for:
 - a. Exterior wall expansion joints.
- D. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
1. Applications: Use for:
 - a. Concealed sealant bead in sheet metal work.
 - b. Concealed sealant bead in siding overlaps.
- E. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.

1. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
- F. Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
 1. Applications: Use for:
 - a. Joints between plumbing fixtures and floor and wall surfaces.
 - b. Joints between kitchen and bath countertops and wall surfaces.
- G. Acoustical Sealant for Concealed Locations:
 1. Composition: Permanently tacky non-hardening butyl sealant.
 2. Applications: Use for concealed locations only:
 - a. Sealant bead between top stud runner and structure and between bottom stud track and floor.
- H. Concrete Floor Joint Filler: Self-leveling, pourable, semi-rigid sealant intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
 1. Composition: Polyurea, single part, 100 percent solids by weight.
 2. Hardness: 75 to 80 after 7 days, when tested in accordance with ASTM D2240 Shore A.
 3. Color: Concrete gray.
 4. Joint Width: 1/8 to 1/4 inch.
 5. Applications: Use for:
 - a. Control joints in concrete slabs and floors not filled with filler placed in form.
 - b. joints in concrete slabs and floors.
- I. Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.
 1. Color: To be selected by Steiling Architecture from manufacturer's standard range.
 2. Applications: Use for:
 - a. Expansion joints in floors.
 - b. At exposed saw joints in interior floor slabs..
- J. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.
 1. Color: Gray.
 2. Applications: Use for:
 - a. Joints in sidewalks and vehicular paving.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D1056 sponge or expanded rubber; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. SPECIAL INSTALLATION REQUIREMENTS:
 - 1. Contractor shall seal and caulk all joints, gaps, cracks and openings in all exterior walls where any air infiltration may occur, up to top of studs and sheathing. Work includes but is not limited to: sheathing base, head and joints, around window and door openings, around electrical boxes, piping, duct entrances, etc. PRIOR TO INSTALLATION OF AIR BARRIER MEMBRANE.
- B. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- C. Perform installation in accordance with ASTM C1193.
- D. Perform acoustical sealant application work in accordance with ASTM C919.
- E. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- F. Install bond breaker where joint backing is not used.
- G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- H. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- I. Tool joints concave.
- J. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.
- K. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.
- L. Concrete Floor Joint Filler: Install concrete floor joint filler per manufacturer's written instructions. After floor joint filler is fully cured, shave joint filler flush with top of concrete slab.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

3.05 PROTECTION

- A. Protect sealants until cured.

END OF SECTION

**SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Thermally insulated hollow metal doors with frames.
- B. Accessories, including glazing, louvers, and matching panels.

1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware.
- B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.
- D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.
- E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.
- F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.
- I. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.
- J. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).
- K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
- L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
- M. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.
- N. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2006.
- O. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.
- P. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2013.
- Q. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.
- R. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
- S. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
- D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Doors and Frames:
 - 1. Curries, an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
 - 2. Ceco Door Products: www.cecodoor.com.
 - 3. Republic Doors; _____: www.republicdoor.com.
 - 4. Steelcraft: www.steelcraft.com.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

- A. Requirements for Hollow Metal Doors and Frames:
 - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
 - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
 - 4. Door Edge Profile: Square edges, with no visible seam on vertical edges.
 - 5. Typical Door Face Sheets: Flush.
 - 6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturers standard.
 - 7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
 - 8. Finish: Factory primed, for field finishing.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

- A. Exterior Doors: Thermally insulated.

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
 - a. Level 2 - Heavy-duty.
 - b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
 - c. Model 1 - Full Flush.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness.
4. Weatherstripping: Refer to Section 08 7100.

2.04 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. General:
 1. Comply with the requirements of grade specified for corresponding door.
 - a. ANSI A250.8 Level 3 Doors: 14 gage frames.
 - b. Frames for Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
 - c. Frames for Sound-Rated Wood Doors: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
 2. Finish: Factory primed, for field finishing.
 3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
 4. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.
- C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
- D. Door Frames, Fire-Rated: Knock-down type.
 1. Fire Rating: Same as door, labeled.
- E. Mullions for Pairs of Doors: Removable type. Refer to Section 08700 Hardware.
- F. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.
- G. Transom Bars: Fixed, of profile same as jamb and head.

2.05 ACCESSORIES

- A. Glazing: As specified in Section 08 8000, factory installed.
- B. Removable Stops: Formed sheet steel, mitered corners ; prepared for countersink style tamper proof screws. Equal to "Anemostat" Fire Glass Stop FGS75 or approved equal for door view light frame.
- C. Astragals for Double Doors: Specified in Section 08 7100.
- D. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.
- E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- F. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

2.06 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- E. Install door hardware as specified in Section 08 7100.
- F. Comply with glazing installation requirements of Section 08 8000.
- G. Coordinate installation of electrical connections to electrical hardware items.
- H. Touch up damaged factory finishes.

3.04 TOLERANCES

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

- A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

- A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

**SECTION 08 3600
SECTIONAL OVERHEAD DOORS**

PART 1 GENERAL

1.01 SECTION INCLUDES

NOTE: Style and design of new sectional overhead doors shall match the OH doors on the refurbished Welding Building located adjacent to this building.

- A. Insulated Sectional Overhead Doors.
 - 1. 24 gauge steel door panels
 - 2. Aluminum Sash Section with DSB glazing.
 - 3. Provide internal bracing at all window sections.
 - 4. **Reinforcing struts and bracing for doors and window sections must be not be visible thru the window vision area.**
- B. Electric Operators and Controls.
- C. Operating Hardware, tracks, and support.

1.02 REFERENCE STANDARDS

- A. DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors; 2011.
- B. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.03 RELATED SECTIONS

- A. Section 04 2900 - Engineered Unit Masonry: Prepared opening in masonry. Execution requirements for placement of anchors in masonry wall construction.
- B. Section 04 5000 - Cold Formed Metal Framing: Steel frame and supports.
- C. Section 07 9005- Joint Sealers: Perimeter sealant and backup materials.
- D. Section 08 7100 - Door Hardware: Cylinder locks.
- E. Section 09 9000 - Paints and Coatings: Field painting.
- F. Division 16 - Raceway and Boxes: Empty conduit from control station to door operator.
- G. Division 16 - Wiring Connections: Electrical service to door operator.

1.04 REFERENCES

- A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

1.05 DESIGN / PERFORMANCE REQUIREMENTS

- A. Wiring Connections: Requirements for electrical characteristics.
 - 1. Horsepower appropriate to door size/weight;
 - 2. Verify power & phase available for use. Size as recommended by Manufacturer, and accepted by Electrical Engineer.
 - 115 volts, single phase, 60 Hz.
 - 230 volts, single phase, 60 Hz.
 - 230 volts, three phase, 60 Hz.
 - 460 volts, three phase, 60 Hz.
- B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.06 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.
- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation.
- C. Store materials in a dry, ventilated weathertight location.

1.09 PROJECT CONDITIONS

- A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Overhead Door Corporation, 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com. (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: sales@overheaddoor.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.02 GLAZED ALUMINUM SECTIONAL OVERHEAD DOORS

- A. Insulated Steel Sectional Overhead Doors: Model 432 Insulated Steel Doors by Overhead Door Corporation. Units shall have the following characteristics:
 - 1. Door Assembly: Insulated steel door assembly with rabbeted meeting rails to provide full-width interlocking structural rigidity.
 - 2. Panel Thickness: 2 inches (51 mm).
 - 3. Exterior Surface: Ribbed.
 - 4. Exterior Steel: Nominal 24 gauge, hot-dip galvanized.
 - 5. Back Cover:
 - 6. 26 gauge steel.
 - 7. Poly-Backed.
 - 8. High Impact Polystyrene Back cover.
 - 9. Center and End Stiles: 16 gauge steel.
 - 10. Spring Counterbalance: Sized to weight of the door, with a helically wound, oil tempered torsion spring mounted on a steel shaft; cable drum of diecast aluminum with high strength galvanized aircraft cable. Sized with a minimum 7 to 1 safety factor.
 - a. High cycle spring: 100,000 cycles.

11. Insulation: Polystyrene.
12. Thermal Values:
 - a. Polystyrene – Calculated section R-value of 7.35.
13. Partial Glazing of Steel Panels:
 - a. Insulated double strength glass, 24 inch by 7 inch (610 mm by 178 mm) window.
14. Window Finish and Color: Two coat baked-on polyester with white exterior and white interior color.
15. Wind Load Design: Design as calculated in accordance with Arkansas Fire Prevention Code, Version 2021.
16. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.
17. Finish and Color:
 - a. Anodized Finish: Clear anodized: Door glazing frames
 - b. Anodized Finish: Bronze anodized: Door panels
 - c. Powder coat finish; Door bottom sill & frames, and all exposed door framing not finish painted: Color as selected by Architect from manufacturer's standard colors.
18. Lock: Interior mounted galvanized single unit.
19. Weatherstripping:
 - a. Flexible bulb-type strip at bottom section.
 - b. Flexible Jamb seals.
 - c. Flexible Header seal.
20. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
21. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
 - a. Entrapment Protection: Required for momentary contact, includes radio control operation.
 - 1) Pneumatic sensing edge up to 18 feet wide. Constant contact only complying with UL 325/2010.
 - 2) Photoelectric sensors monitored to meet UL 325/2010.
 - b. Operator Controls:
 - 1) Push-button operated control stations with open, close, and stop buttons.
 - 2) Flush mounting.
 - 3) Interior location.
 - c. Special Operation:
 - 1) Pull switch.
 - 2) Vehicle detector operation.
 - 3) Radio control operation.
 - 4) Card reader control.
 - 5) Photocell operation.
 - 6) Door timer operation.
 - 7) Commercial light package.
 - 8) Explosion and dust ignition proof control wiring.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until openings have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. Verify electric power is available and of correct characteristics.

- D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer's printed instructions.
- B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- C. Anchor assembly to wall construction and building framing without distortion or stress.
- D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- E. Fit and align door assembly including hardware.
- F. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.04 CLEANING AND ADJUSTING

- A. Adjust door assembly to smooth operation and in full contact with weatherstripping.
- B. Clean doors, frames and glass.
- C. Remove temporary labels and visible markings.

3.05 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
- B. Protect installed products until completion of project.
- C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

**SECTION 08 7100
DOOR HARDWARE**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for hollow steel doors.
- B. Thresholds.
- C. Weather-stripping, seals and door gaskets.

1.02 RELATED REQUIREMENTS

- A. Section 08 1113 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.
- C. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors; Door and Hardware Institute; 1996.
- D. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2010.
- E. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures; National Fire Protection Association; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

1.05 SUBMITTALS

- A. See Section 01 3323 - Submittals, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts.
 - 2. No templates are to be distributed until all Hardware Schedule has been approved by the architect.
 - 3. Approval of the schedule will not relieve the contractor of the responsibility of furnishing all necessary hardware.
 - 4. Copies of the approved schedule with necessary templates are to be furnished by the hardware suppliers to other affected subcontractor or material supplier.
 - 5. Include with each schedule a door index, list of related information to facilitate checking by architect.
- C. Keys: Deliver with identifying tags to Black River Technical College by security shipment direct from hardware supplier.
- D. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Black River Technical College's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with three years of experience.
- C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 COORDINATION

- A. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.
- B. Furnish templates for door and frame preparation.
- C. Coordinate Black River Technical College's keying requirements during the course of the Work.

1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year warranty for door closers.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 GENERAL REQUIREMENTS FOR DOOR HARDWARE PRODUCTS

- A. Provide products that comply with the following:
 - 1. Applicable provisions of Federal, State, and local codes.
 - 2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
 - 3. Applicable provisions of NFPA 101, Life Safety Code.
 - 4. Fire-Rated Doors: NFPA 80.
 - 5. All Hardware on Fire-Rated Doors: Listed and classified by UL as suitable for the purpose specified and indicated.
 - 6. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.
 - 7. NO substitutions on Sargent locks and panics.
 - 8. Hardware other than locks and panics may be approved by architect.
- B. Finishes: Identified in schedule at end of section.
 - 1. US 26D Satin Chrome, all hardware except items listed below.
 - 2. US 32D Satin Stainless Steel: Wall stops, push, pull and kick plates.
 - 3. Door Closers: Finish to be 689 aluminum painted.

2.03 KEYING

- A. Door Locks: All cylinders and lock cores provided in this phase of construction to have facility standard keyway.
 - 1. Keying of specific spaces to be determined by owner.
- B. Supply keys in the following quantities:
 - 1. 6 master keys.
 - 2. 3 change keys for each lock.
 - 3. Stamp key bows "Do not duplicate"

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.
- B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.

- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item:
 - 1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
 - 2. For steel doors and frames: See Section 08 1113.

3.03 ADA GUIDELINES

- A. All hardware must meet guidelines as stated in the Americans with Disabilities Act. This includes locksets, closers, thresholds, etc.
- B. Rough-in for all hardware to be located within handicap reach limitations as outlined in the Americans with Disabilities Act.
- C. Note: Door thresholds and closers must meet ADA requirements.

3.04 FIELD QUALITY CONTROL

- A. Hardware supplier to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.05 ADJUSTING

- A. Adjust hardware for smooth operation.

3.06 PROTECTION

- A. Do not permit adjacent work to damage hardware or finish.

3.07 SCHEDULE

- A. See attached.
- B. MATERIALS
 - 1. Manufacturer's Index:
 - H..... HAGER
 - M..... McKINNEY
 - N..... NORTON
 - R..... RIXSON
 - S..... SARGENT

3.08 HARDWARE SCHEDULE

- A. The following is a general listing of hardware requirements and is not intended to be a final hardware schedule. Any items of hardware required by good practice or to meet state and local codes shall be furnished whether or not specifically called out in the below listed groups.

Alum = Clear / Mill Aluminum
 DW = Door Width
 DH = Door Height
 DOW = Door Opening Width
 DOH = Door Opening Height
 TBD = To Be Determined

Each To Have:

- B. **SET 1** Door(s) 101, 102,

Each To Have:

M	3 ea	Hinge	TA2714 4.5" x 4.5" NRP US26D
S	1 ea	Exit Device	8806 x ETL x DW x US32D
N	1 ea	Door Closer	UNI 8501 x 689
H	1 ea	Weatherstrip	891SV (DOW x DOH) Alum
H	1 ea	Drip Cap	810S (DOW + 4") Alum

H	1 ea	Threshold	412S x DW x Alum
H	1 ea	Sweep Strip	750SN x DW x Alum

- C. **SET 2** Doors: Overhead Sectional Doors: 103, 104
Provide matching key cylinder each overhead door.
Remainder of hardware by OHD supplier.

END OF SECTION

**SECTION 09 9000
PAINTS AND COATINGS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints and other coatings.
- C. Scope: All exposed non-factory finished items, both exterior and interior, shall be painted as per paint schedule, including (but not limited to):
 - 1. Exposed surfaces of steel lintels and ledge angles.
 - 2. Exposed steel beams and columns.
 - 3. Mechanical and Electrical:
 - a. Paint all insulated and exposed pipes, unless otherwise indicated.
 - b. Paint all shop-primed items.
 - c. On the roof and outdoors, paint all equipment that is exposed to weather or to view, including that which is factory-finished. Color as directed by Architect.
 - d. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - e. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items except as specifically noted on the drawings:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Non-metallic roofing and flashing.
 - 6. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 - 7. Marble, granite, slate, and other natural stones.
 - 8. Floors, unless specifically so indicated.
 - 9. Ceramic and other tiles.
 - 10. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
 - 11. Glass.
 - 12. Acoustical materials, unless specifically so indicated.
 - 13. Concealed pipes, ducts, and conduits.
- E. See Schedule - Surfaces to be Finished, at end of Section.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- C. GreenSeal GS-11 - Paints and Coatings; 2013.

1.03 DEFINITIONS

- A. Conform to ASTM D 16 for interpretation of terms used in this section.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.

- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Paint and Coatings: 1 gallon of each color, unopened; store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

1.07 MOCK-UP

- A. Provide painted wall section 8 feet wide by 8 feet high of each color selection. Locate where directed.
- B. Mock-up may remain as part of the work, as directed by Architect.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

2.02 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each coating material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: All primer coatings shall be white color (no tint color allowed).

- C. Primers: Where not specified, if the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- D. Volatile Organic Compound (VOC) Content:
 - 1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- E. Chemical Content: The following compounds are prohibited:
 - 1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- F. Colors: To be selected from manufacturer's full range of available colors.
 - 1. Selection to be made by Steiling Architecture after award of contract.
 - 2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
 - 3. Extend colors to surface edges; colors may change at any edge as directed by Steiling Architecture.
 - 4. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under, unless directed otherwise by Architect.

2.03 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. If substrate preparation is the responsibility of another installer, notify Steiling Architecture of unsatisfactory preparation before proceeding.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.

- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing coatings that exhibit surface defects, in existing areas adjacent to new construction.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- F. Seal surfaces that might cause bleed through or staining of topcoat.
- G. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- H. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply 100% acrylic primer immediately following cleaning.
- I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of 100% acrylic primer.
- J. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- K. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
- L. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance; each succeeding coat slightly darker than the previous.
- F. Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Sand metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

3.07 SCHEDULE - SURFACES TO BE FINISHED

- A. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically noted.
 - 2. Fire rating labels, equipment serial number and capacity labels.
- B. Paint the surfaces described below under Schedule - Paint Systems.

3.08 SCHEDULE - PAINT SYSTEMS

- A. Unless noted otherwise, all exposed finish surfaces that are not factory finished are to be painted or finished in accordance with the following schedule. Coating surfaces for which type of coating has not been specified herein as specified for surfaces of similar materials and conditions of exposure.
- B. Trade names and numbers used herein, unless noted otherwise, are those of Sherwin-Williams Industries (S-W), Benjamin Moore (BM), and Farrell-Calhoun (FC) for the purpose of establishing quality standards for painting materials.
- C. Wood Stained:
 - 1. 1st coat: S-W Oil Stain
 - a. BM Penetrating Stain #234
 - b. FC Wood Kraft Penetrating Wiping Stain #1110
 - 2. 2nd coat: Spray applied: S-W Promar Easy Sealer B44FT8
 - a. BM Low Luster Polyurethane #C435
 - b. FC Wood Kraft Satin Polyurethane Varnish #1120
 - 3. 3rd coat: Spray applied: S-W Sherwood High Build, Medium Rubbed Lacquer T70FT1
 - a. BM Low Luster Polyurethane #C435
 - b. FC Wood Kraft Satin Polyurethane Varnish #1120
 - 4. 4th coat: Rubbed Effect: S-W Sherwood High Build, Medium Rubbed Effect
 - a. BM Low Luster Polyurethane #C435
 - b. FC Wood Kraft Satin Polyurethane Varnish #1120
- D. Wood Painted:
 - 1. 1st coat, primer: White color: S-W Industrial Enamel, B542
 - a. BM Fresh Start Acrylic #023
 - b. FC Waterborne 100% Acrylic Enamel Undercoater #699
 - 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM Super Spec 100% Acrylic Semi-Gloss #281
 - b. FC 100% Acrylic Interior Semi-Gloss Latex Enamel #600 Line
 - 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM Super Spec 100% Acrylic Semi-Gloss #281
 - b. FC 100% Acrylic Interior Semi-Gloss Latex Enamel #600 Line
- E. Hollow Metal Doors and Frames: Spray applied. Brush marks not acceptable. Apply final coat just prior to final wall paint coat installation.
 - 1. 1st coat, primer: White color: S-W Kem Kromik Metal Primer
 - a. BM Shop-Coat #M14
 - b. FC Tuff-Boy Rust-Stop White Primer #1022
 - 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26

- b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
- F. Metal, Ferrous, unprimed, exterior and interior:
 - 1. 1st coat, primer: White color: S-W Kern Kromik Metal Primer
 - a. BM Shop-Coat #M14
 - b. FC Tuff-Boy Rust-Stop White Primer #1022
 - 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 4. Total DFT of 2nd and 3rd coats not less than 6.0 mils.
- G. Metal, Ferrous, factory primed, exterior and interior: (Touch -up shop finish painted items with like materials.)
 - 1. 1st coat, primer: White color: S-W Kern Kromik Metal Primer
 - a. BM Shop-Coat #M14
 - b. FC Tuff-Boy Rust-Stop White Primer #1022
 - 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 4. Total DFT of 2nd and 3rd coats not less than 6.0 mils.
- H. Metal, Galvanized, exterior and interior:
 - 1. 1st coat, primer: White color: S-W Kern Kromik Metal Primer
 - a. BM DTM Alkyd Gloss #M26
 - b. FC 100% Acrylic All Purpose Metal Primer #5-56
 - 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 1) FC Tuff-Boy Waterborne 100% Acrylic DTM Enamel #8000 at contractor's option
 - 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM DTM Alkyd Gloss #M26
 - b. FC Tuff-Boy Industrial Alkyd Gloss Enamel #800 Line
 - 1) FC Tuff-Boy Waterborne 100% Acrylic DTM Enamel #8000 at contractor's option
 - 4. Total DFT of 2nd and 3rd coats not less than 6.0 mils.
- I. Metal, Miscellaneous: Paint all exposed pre-engineered metal building components, misc. exposed steel, HVAC ductwork, electrical conduits, and plumbing vents:
 - 1. 1st coat, primer: White or black, to match top coat: Comply with paint manufacturer recommended primer systems for steel, aluminum, and galvanized surfaces
 - 2. 2nd coat: S-W Dry Fall Flat, B48W60, Brilliant white or flat black, as required by architect.
 - a. BM Super Spec DTM Sweep-up Spray Alkyd Flat
 - b. FC Tuff-Boy Oil-Base Dry Fall Flat #990
 - 1) FC Tuff-Boy 999 Water-Base Dry Fog Flat at contractor's option.
 - 3. 3rd coat: S-W Dry Fall Flat, B48W60, Brilliant white or flat black, as required by architect.
 - a. BM Super Spec DTM Sweep-up Spray Alkyd Flat
 - b. FC Tuff-Boy Oil-Base Dry Fall Flat #990
 - 1) FC Tuff-Boy 999 Water-Base Dry Fog Flat at contractor's option.
- J. Concrete Masonry Units, exposed to view:
 - 1. 1st coat, primer: White color: S-W Loxon Block Surfacers A24W200

- a. BM Block Filler #M88
 - b. FC Interior/Exterior Acrylic latex Masonry Block Filler #470A
 - c. Required Coverage 50-100 sq. ft./gal., 16 mil. wet thickness, 8 mil. dry DFT
 - d. Surfer to be roller applied. DO NOT SPRAY APPLY.
- 2. 2nd coat: Tint 3/4 of top coat color: S-W Industrial Enamel, B542
 - a. BM Super Spec 100% Acrylic #274
 - b. FC Interior Premium Eggshell Latex Enamel #370
- 3. 3rd coat: Top coat: S-W Industrial Enamel, B542
 - a. BM Super Spec 100% Acrylic #274
 - b. FC Interior Premium Eggshell Latex Enamel #370
- K. Gypsum Board, non-epoxy coating:
 - 1. 1st coat, primer: White color: PrepRite 200 Latex Primer
 - a. BM Prep Coat High Build Primer #270
 - b. FC Perfik-Seal Interior Latex Primer/Sealer #380
 - 2. 2nd coat: Tint 3/4 of top coat color: ProMar 200 Alkyd Eg-Shel, B33-W251
 - a. BM Super Spec 100% Acrylic #277
 - b. FC Interior Premium Eggshell Latex Enamel #370
 - 3. 3rd coat: Top coat: ProMar 200 Alkyd Eg-Shel, B33-W251, color, top coat.
 - a. BM Super Spec 100% Acrylic #277
 - b. FC Interior Premium Eggshell Latex Enamel #370
- L. Gypsum Board, epoxy coating:
 - 1. 1st coat, primer: White color: PrepRite 200 Latex Primer
 - a. BM Prep Coat High Build Primer #270
 - b. FC Perfik-Seal Interior Latex Primer/Sealer #380
 - 2. 2nd coat: Tint 3/4 of top coat color: Pro Industrial Precatalyzed Epoxy Eg-Shel K45-150
 - a. BM Super Spec Acrylic Epoxy #256
 - b. FC Tuff-Boy Waterborne Pre-Cat Acrylic Epoxy #1260
 - 3. 3rd coat: Top coat: Pro Industrial Precatalyzed Epoxy Eg-Shel K45-150
 - a. BM Super Spec Acrylic Epoxy #256
 - b. FC Tuff-Boy Waterborne Pre-Cat Acrylic Epoxy #1260
- M. Concrete, Concrete Block, Brick Masonry: Finish all surfaces exposed to view.
 - 1. Interior: CI-OP-3L, semi-gloss.
- N. Gypsum Board: Finish all surfaces exposed to view.
 - 1. Interior Ceilings and Bulkheads: GI-OP-3L, flat.
 - 2. Interior Walls: GI-OP-3A, semi-gloss.
- O. Wood: Finish all surfaces exposed to view.
 - 1. Exterior trim and frames: WE-OP-3A.
 - 2. Interior trim and frames: WI-OP-3A, semi-gloss.
 - 3. Interior paneling: WI-TR-VS, gloss.
- P. Wood Cabinets: Finish all exposed and semi-exposed surfaces.
 - 1. Outside Surfaces: WI-TR-VS, gloss.
 - 2. Inside Surfaces: WI-OP-2A, semi-gloss.
- Q. Wood Doors: WI-TR-VS.
- R. Steel Doors and Frames: Finish all surfaces exposed to view; MI-OP-3A, gloss.
- S. Steel Fabrications: Finish all surfaces exposed to view.
 - 1. Exterior: ME-OP-3A, gloss; finish all surfaces, including concealed surfaces, before installation.
 - 2. Interior: MI-OP-3L, gloss.

- T. Pipe and Duct Insulation Jackets; Roof Insulation Liner: Finish all surfaces exposed to view; FI-OP-2L, flat.

3.09 SCHEDULE - COLORS

- A. Colors to be selected after start of construction.

END OF SECTION

**SECTION 10 7316.13
METAL CANOPIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Work in this section includes furnishing and installation of extruded aluminum overhead hanger rod style canopies.
- B. Finished canopy sizes as noted on construction drawings.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - Sheet Metal Flashings and Trim

1.03 REFERENCE STANDARDS

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.
- B. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010 (Reapproved 2015).
- C. ASTM E2950 - Standard Specification for Metal Canopy Systems; 2014.
- D. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; 2013a.
- E. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions; 2015a.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit product data sheets, including material descriptions and finishes, and preparation instructions and recommendations.
- C. Shop Drawings: Prior to commencement of fabrication, submit detailed shop drawings, showing profiles, sections of components, finishes, and fastening details.
- D. Design Data: Submit comprehensive structural analysis of design for the specified loads. Stamp and sign calculations by professional engineer.
- E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Perform design under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State of Arkansas.
- B. Manufacturer Qualifications: Company specializing in the manufacture of products similar to those required for this project.
 - 1. Not less than five years of documented experience.
- C. Erector Qualifications: Company specializing in performing the work of this section.
 - 1. Not less than five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site ready for erection.
- B. Package using methods that prevent damage during shipping and storage on site.
- C. Store materials under cover and elevated above grade.

1.07 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

- B. Metal Canopies: Correct defective work within a three year period after Date of Substantial Completion.
- C. Finish Warranty: Provide manufacturer's ten year warranty on factory finish against cracking, peeling, and blistering.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Canopies:
 - 1. Mapes Canopies; 1-888-273-1132, www.mapescanopies.com.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 METAL CANOPIES

- A. Shop Fabricated Metal Canopy Type: Super Lumideck with Flat Soffit and Hanger Rods .
 - 1. Design and fabricate metal canopy system to resist wind, snow, live, and seismic loads without failure, damage, or permanent deflection in accordance with ASCE 7:
 - 2. Thermal Movement: Design canopy system to accommodate thermal movement caused by ambient temperature range of 120 degrees F and surface temperature range of 180 degrees F without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects on assembly components.

2.03 COMPONENTS

- A. Decking to be 3" extruded flat soffit, .078 decking
- B. Fascia shall be standard 8" extruded "J" style (minimum .125 aluminum)
- C. Hanger rods and attachment hardware shall be powder coated to match canopy.
- D. Decking and fascia shall be extruded aluminum, alloy 6063-T6.

2.04 FABRICATION

- A. All connections shall be mechanically assembled utilizing 3/16" fasteners with a minimum shear stress of 350lbs. Pre-welded or factory-welded connections are not acceptable.
- B. Decking shall be designed with interlocking extruded aluminum members with mechanical fasteners field applied to provide structural integrity for the completed assembly.
- C. Concealed drainage. Water shall drain from covered surfaces into integral fascia gutter and directed to either the front for front drainage or to the rear for ground level discharge via one or more designated downpouts.

2.05 FINISHES

- A. Exposed finishes to be clear anodized.

2.06 ACCESSORIES

- A. Trim, Closure Pieces, and Flashings: Same material, thickness and finish as sheet metal decking; factory-fabricated to required profiles.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and site area for conditions that might prevent satisfactory installation.
- B. Verify that foundation, electrical utilities, and placed anchors are in correct position.
- C. Verify that bearing surfaces are ready to receive this work.
- D. Installer shall confirm dimensions and elevations to be as shown on drawings and coordinated with shop drawings.
- E. Erection shall be performed by an approved installer and scheduled after all concrete, masonry, and roofing in the area is completed.
- F. Do not proceed with installation until all conditions are satisfactory.

3.02 INSTALLATION - FRAMING

- A. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation.
- B. Do not field cut or alter structural members without approval.

3.03 INSTALLATION - CANOPY COVERING

- A. Install in accordance with manufacturer's instructions.
- B. Fasten metal decking to steel support members, aligned level and plumb.
- C. Install fascia panels, trim, and flashing.
- D. Separate dissimilar metals using concealed bituminous paint.
- E. Touch-up damaged finish coating using material provided by manufacturer to match original coating.

3.04 TOLERANCES

- A. Maximum Variation from Level: Plus/Minus 1/8 inch.

3.05 CLEANING

- A. Clean surfaces of dust and debris; follow manufacturer's cleaning instructions for the finish used.

3.06 PROTECTION

- A. Protect canopy after installation to prevent damage due to other work until Date of Substantial Completion.

END OF SECTION

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**SECTION 13 3419
PRE-ENGINEERED BUILDINGS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. **Note:** Existing pre-engineered structural steel building frame, wall girts and roof purlins shall remain in place, unless damaged beyond repair.
- B. Contractor provide and install new metal girts and sub-framing required to construct a new exterior wall at north face of the existing steel building, utilizing the existing building columns and beams as the primary support framing.
- C. Provide and install pre-formed roof and wall panel system specified in Section 074113 - Metal Roof Panels and 074213 - Metal Wall Panels.
- D. Include gutters, downspouts, perimeter flashing, trim, ridge and gable closures and flashing as applicable, fasteners, supplementary furring and supports and sealants required for complete roofing system.
- E. Insulated Provide factory fabricated prefinished roof mounted equipment curbs.

1.02 RELATED REQUIREMENTS

- A. Section 05 5000 - Metal Fabrications.
- B. Section 07 9200 - Joint Sealants: Sealing joints between accessory components and wall system.
- C. Section 07 2110 - Simple Saver Thermal Insulation
- D. Section 07 4113 - Metal Roof Panels
- E. Section 07 4213 - Metal Wall Panels
- F. Section 07 6200 - Sheet Metal Flashing and Trim
- G. Section 07 7123 - Gutters and Downspouts
- H. Section 07 9005 - Joint Sealers.
- I. Division 15 - Mechanical
- J. Division 16 - Electrical

1.03 APPLICABLE PUBLICATIONS:

- A. American Institute of Steel Construction (AISC): "Manual of Steel Construction".
- B. American Iron and Steel Institute (AISI): "Cold-Formed Steel Design Manual", 1986 edition.
- C. American Society for Testing and Materials (ASTM):
 - 1. A36-88 Structural Steel.
 - 2. A446-87 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dipped Process, Structural Quality
 - 3. A463-88 Steel Sheet, cold Rolled, Aluminum Coated Type 2.
 - 4. A792-86 Steel Sheet, Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 5. A570-88 Steel, Sheet and Strip, Hot rolled, Structural Quality.
 - 6. A572-88 High Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality.
 - 7. A307-88 Carbon Steel Bolts.
 - 8. A325-88 High Strength Bolts for Structural Joints.
- D. Underwriters Laboratories (UL): "Tests for Wind-Uplift Resistance of Roof Assemblies - UL 580".
- E. American Welding Society's (AWS) "Standard code for Arc and Gas Welding in Building Construction"
- F. Metal Building Manufacturers Association (MBMA): "Low Rise Building Systems Manual."

1.04 QUALITY ASSURANCE

- A. The Metal Building System shall be designed, engineered and fabricated by a Building Manufacturer who has been regularly engaged for at least ten (10) years in the design, engineering and fabrication of the type and quality herein specified.
- B. Unless otherwise noted, all materials in this specification shall be furnished by the Building Manufacturer.
- C. The Building Manufacturer must: 1) Be certified for AISC's QUALITY CERTIFICATION, CATEGORY MB program; or 2) The Building Manufacturer's Engineer of Record, licensed to practice in the State of Arkansas, shall provide written confirmation that the metal building has been designed and fabricated to meet all requirements of AISC, CATEGORY MB program.
- D. The roofing systems manufacturer shall maintain a certified installer program for its product and maintain an up-to-date roofing contractor list.
- E. All structural mill sections and welded plate sections shall be designed in accordance with the AISC's "Manual of Steel Construction".
- F. All cold-formed steel structural members shall be designed in accordance with the AISI's "Cold-formed Steel Design Manual", latest edition.
- G. All roof and wall panels shall be designed in accordance with the AISI's "Cold-formed Steel Design Manual".
- H. Welded connections shall comply with the American Welding Society's (AWS) "Standard Code for Arc and Gas Welding in Building Construction" for welding procedures.
- I. All materials shall be new and unused prior to fabrication. The Building Manufacturer shall warrant the materials manufactured by it, if properly erected in accordance with the plans and specifications furnished by it, against defects in materials and workmanship for a period of one (1) year after delivery.
- J. Design structural components, develop shop drawings, and perform shop and site work under direct supervision of a Professional Structural Engineer experienced in design of this Work.
 - 1. Design Engineer Qualifications: Licensed in the State of Arkansas.
 - 2. Conform to applicable code for submission of design calculations as required for acquiring permits.
 - 3. Cooperate with regulatory agency or authority and provide data as requested.
- K. Perform work in accordance with AISC 360 - Specification for Structural Steel Buildings.
- L. Perform welding in accordance with AWS D1.1.
- M. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
- N. Erector Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.05 WARRANTY

- A. Roof Panels - See Section 07 4113 - Metal Roof Panels
- B. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

1.06 SUBMITTALS

- A. Submit shop drawings, product data and certification and warranty under provisions of Section 01300.
- B. Shop Drawings: Submit complete erection drawings showing anchor bolts settings, sidewall, endwall, bracing, and roof framing, transverse cross sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components. Furnish submittals on all accessories.

- C. Product Data: Submit manufacturers product information, specifications and installation instructions for building components and accessories, including color charts.
- D. Certification: Submit written certification prepared and signed by a Professional Engineer, registered to practice in the state of Arkansas, verifying that building design meets indicated loading requirements and codes of authorities having jurisdiction.
- E. Warranty: Submit 2 sample copies of roof and wall panel warranty with terms and conditions as stated above.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. All materials shall be unloaded, handled, hauled and delivered to storage by competent workmen in a manner which will prevent bends, dents, scratches or other damage. Damaged materials shall be rejected and promptly replaced. All materials shall be properly stored and protected from weather damage. All shipments must be thoroughly checked by the consignee. If shortage or damage is found, a notation must be placed on the bill of lading and must be confirmed by the carrier.
- B. Primed Materials: Upon receipt, all bundles of primed materials shall be stored on blocking at an angle sufficient to allow any trapped water to drain and should be protected from the weather by covers allowing air circulation. Water, ice and snow shall not be allowed to collect and remain thereon.
- C. Roof and Wall Panels: Bundles of panels shall be inspected for moisture upon receipt. If moisture is present, dry the panels and, if possible, store them in a warm, dry place. The panel bundles shall be elevated and sloped in a manner to allow moisture to drain. cover all bundles with a tarp or plastic, leaving airspaces for adequate air circulation.

1.08 REFERENCE STANDARDS

- A. AISC 360 - Specification for Structural Steel Buildings; 2010.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.
- C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.
- E. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2007a.
- F. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2007.
- G. ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength; 2014a.
- H. ASTM A490M - Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric); 2014a.
- I. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- J. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.
- K. ASTM A529/A529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 2014.
- L. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 2015.
- M. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

- N. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2010 (Reapproved 2015).
- O. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011 (Reapproved 2015).
- P. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.
- Q. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.
- R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.
- S. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions; 2015a.
- T. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
- U. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015.
- V. MBMA (MBSM) - Metal Building Systems Manual; 2012.
- W. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).
- X. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Current Edition, Including All Revisions.

1.09 DESIGN REQUIREMENTS

- A. Design members to withstand dead load, applicable snow load, and design loads due to pressure and suction of wind calculated in accordance with applicable code.
- B. Provide drainage to exterior for water entering or condensation occurring within wall or roof system.
- C. Size and fabricate wall and roof systems free of distortion or defects detrimental to appearance or performance.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Metal Buildings Systems:
 - 1. American Buildings Co: www.americanbuildings.com
 - 2. Architectural Integrated Metals Inc.; Product ____: www.ai-metals.com
 - 3. Alliance Steel Inc. : www.allianceokc.com
 - 4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ASSEMBLIES

- A. Refer to structural drawings for notes and details by structural engineer regarding the Pre-Engineered Building and Design Loads.
- B. Design Loads as a minimum shall meet all requirements of the 2002 Arkansas Fire Prevention Code.

2.03 STRUCTURAL STEEL

- A. All structural mill sections or welded up plate sections shall be designed in accordance with AISC's latest "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings," and all cold-formed steel structural members shall be designed in accordance with AISI's latest "Specification for the Design of cold-Formed Steel Structural Members."
- B. Framing: Primary framing and columns, purlins, girts, eave struts, other structural members and clips shall be factory punched for easy and rapid erection by field bolting, except where

shop connections are used. Field welding will not be permitted unless specified by the building Manufacturer and allowed by the Architect of Record or the Engineer of Record.

- C. Rigid Frames: Rigid Frames shall be complete with baseplates and splice plates prepared for field-bolted connections. They shall consist of built-up sidewall columns of tapered or constant web depths (see drawings for allowable shape) and rafters with tapered or constant web depths as required by the Building Manufacturers' design. Interior columns may be pipe sections and located where shown on the drawings.
- D. The rigid frames shall be designed as pinned bases, with no moment transferred to the foundations, unless specified otherwise.
- E. Portal Frames: Portal Frame columns shall be set within and shall be secured top and bottom to Primary Frame columns and shall not attach independently to foundation piers.
- F. Steel for all built-up sections shall meet as applicable the physical and chemical properties of ASTM A 572 modified to 55,000 psi minimum yield and 70,000 psi minimum tensile strength, or ASTM A 607-85, Grade 55, or ASTM A 572-88c modified to 55,000 minimum yield and 70,000 psi minimum tensile strength, or ASTM A 570-88, Grade 55.
- G. Hot-rolled structural shapes shall comply with the requirements of ASTM A36-88. Pipes shall comply with the requirements of ASTM A500, ASTM A501, or ASTM A53.
- H. Endwall Framing: The endwall columns and beams shall consist of cold-formed "C" sections, hot-rolled sections or buildup sections meeting their respective materials specifications.
- I. Secondary Framing Steel: Steel used to form the "Z" and "C" shaped purlins, girts and eave struts shall be at least 8" deep and not less than 16 gauge, 55,000 psi minimum yield steel comparable to or exceeding the requirements of ASTM A570-88.
- J. When designed as continuous beams, the purlins and girts shall be checked for the combined bending and shear stresses at the frame centerline and at the end of their laps.
- K. Bracing: Locate bracing as shown on the drawings to remove horizontal wind and seismic forces. Bracing shall be by means of Portal Frames unless specific approval for alternate bracing is obtained from the Architect.
 - 1. Portal Frames: Portal Frame columns shall be set within and shall be secured top and bottom to Primary Frame columns and shall not attach independently to foundation piers.
 - 2. If portal frames cannot be used, bracing may be either:
 - a. Cables of ASTM A475, 7 strand, Extra-High-Strength material, 1/4" diameter minimum.
 - b. ASTM A36 rods, 1/2" diameter minimum.
 - c. ASTM A36 angle, pipe or tube.
- L. Structural Painting: All structural steel and light gauge steel members shall be cleaned of loose mill scale, dirt and other foreign material by the procedures of SSPC-SP2 and then be given a one mil coat of red oxide primer meeting or exceeding the performance requirements of Specification SSPC 15-68T (replaces and is equivalent to Federal Specification TT-P-636D). The primer is not intended to be a finish coat.
- M. Abrasions caused by handling and erection shall be touched-up by the contractor performing field touch-up. Use the same primer used by the Building Manufacturer.
- N. Structural Bolts: All field connections shall be made with black, unpainted ASTM A325 or A307 bolts, nuts and washers as shown on the Building Manufacturer's erection drawings. All bolts shall be installed and tightened in accordance with the "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- O. Anchor Bolts and Foundation Design: Anchor bolts shall be ASTM A307 and installed in accordance with the Anchor Bolt Plan furnished by the Building Manufacturer.
- P. Provide additional framing members, wall girts and angles as required by the contract drawings and details.

2.04 WELDING

- A. Welding procedure and operator qualification and welding quality standards shall be in accordance the American Welding Society structural welding code. Inspection other than visual inspection as defined by AWS paragraph 8.15.1 shall be identified and negotiated prior to bidding.
- B. Certification of welder qualification shall be supplied when requested.

2.05 ROOF PANELS AND FINISHES

- A. Refer to Section 07 4113 - Metal Roof Panels

2.06 PIPE FLASHING

- A. Pipe flashing units shall be constructed of E.P.D.M. (Ethylene Propylene Diene Monomer) rubber as manufactured by DuPont (Nordel 1440 Hydrocarbon). Unit shall be black in color. A ductile aluminum, Alloy A1100-0, reinforcing ring shall be bonded to a rubber flange on the Base of the flashing unit. Metal building manufacturer erection drawings shall show installation of all flashing units.

2.07 WALL PANELS AND FINISH

- A. Refer to Section 07 4213 - Metal Wall Panels

2.08 MATERIALS - FRAMING

- A. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1; galvanized to ASTM A153/A153M.
- B. Welding Materials: Type required for materials being welded.
- C. Primer: SSPC-Paint 20 zinc rich.
- D. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
 - 1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
 - 2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.

2.09 FABRICATION - FRAMING

- A. Fabricate members in accordance with AISC 360 for plate, bar, tube, or rolled structural shapes.
- B. Anchor Bolts: Formed with bent shank, assembled with template for casting into concrete.

2.10 FABRICATION - SECONDARY FRAMING

- A. Girts/Purlins: Rolled formed structural shape to receive siding, roofing and liner sheet.
- B. Internal and External Corners: Same material thickness and finish as adjacent material, profile brake formed to required angles. Back brace mitered internal corners with 24 gauge thick sheet.
- C. Expansion Joints: Same material and finish as adjacent material where exposed, 24 gauge thick, manufacturer's standard brake formed type, of profile to suit system.
- D. Flashings, Closure Pieces, Fascia: Same material and finish as adjacent material, profile to suit system.
- E. Fasteners: To maintain load requirements and weather tight installation, same finish as cladding, non-corrosive type.

2.11 FABRICATION - GUTTERS AND DOWNSPOUTS

- A. Refer to Section 07 7123 for Gutters and Downspouts.

2.12 FINISHES

- A. Framing Members: Clean, prepare, and shop prime. Do not prime surfaces to be field welded.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that foundation, floor slab, mechanical and electrical utilities, and placed anchors are in correct position

3.02 ERECTION - FRAMING

- A. Erect framing in accordance with AISC 360.
- B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as indicated.
- C. Set column base plates with non-shrink grout to achieve full plate bearing.
- D. Do not field cut or alter structural members without approval.
- E. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 ERECTION - WALL AND ROOF PANELS

- A. Install in accordance with manufacturer's instructions.
- B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.
- C. Fasten cladding system to structural supports, aligned level and plumb.
- D. Locate end laps over supports. End laps minimum 2 inches. Place side laps over bearing.
- E. Provide expansion joints where indicated.
- F. Use concealed fasteners.
- G. Install insulation and vapor retarder as specified in Section 07 2110
- H. Install sealant and gaskets, providing weather tight installation.

3.04 ERECTION - GUTTERS AND DOWNSPOUTS

- A. Rigidly support and secure components. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.
- B. Apply bituminous paint on surfaces in contact with cementitious materials.
- C. Slope gutters as per manufacturers recommendations.
- D. Install pre-cast concrete splash blocks under each downspout.

3.05 INSTALLATION - ACCESSORY COMPONENTS IN WALL SYSTEM

- A. Install door frames, doors, and overhead doors in accordance with manufacturer's instructions.
- B. Seal wall and roof accessories watertight and weather tight with sealant in accordance with Section 07 9005.

3.06 TOLERANCES

- A. Framing Members: 1/4 inch from level; 1/8 inch from plumb.

END OF SECTION

**SECTION 22 0500
COMMON WORK RESULTS FOR PLUMBING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Basic Requirements for complete plumbing system.

1.02 RELATED SECTIONS

- A. Section 22 0548 – Vibration and Seismic Controls for Plumbing Piping and Equipment.
- B. Section 22 1005 – Plumbing Piping.
- C. Section 31 2316 – Excavation.

1.03 SITE INSPECTION

- A. Examine premises and understand the conditions which may affect performance of work of this Division before submitting proposals for this work.
- B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

1.04 DRAWINGS

- A. Mechanical drawings show general arrangement of piping ductwork, equipment, etc. Follow closely as actual building construction and work of other trades will permit.
- B. Consider architectural and structural drawings part of this work insofar as these drawings furnish information relating to design and construction of building. These drawings take precedence over mechanical drawings.
- C. Because of the small scale of mechanical drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves and accessories required, to meet the conditions.
- D. Record differences between mechanical work as installed and as shown in Contract Documents on a set of prints of mechanical drawings, to be furnished by Architect. Return these prints to Architect at completion of project. These will be labeled "Contractor Revised Drawings".

1.05 SUBSTITUTIONS

- A. The naming of specified items on the drawings or in the specifications is intended to establish a level of quality and performance. Substitution requests may be submitted at the time of shop drawing submittal. Review of substituted equipment or material prior to the Bid Date will not be considered unless otherwise specified.
- B. Substitution shall be submitted as specified in Division 01.

1.06 CODE REQUIREMENTS, FEES & PERMITS

- A. Perform work in accordance with applicable provisions of state and local Plumbing Code, gas ordinances and adoptions thereof. Provide materials and labor necessary to comply with rules, regulations and ordinances.
- B. In case of differences between building codes, state laws, local ordinances, utility company regulations and Contract Documents, the most stringent shall govern. Promptly notify Architect in writing of such differences.

1.07 CONTRACTOR REVISED DRAWINGS

- A. The contractor shall, during the progress of the work, keep an accurate record of all changes and corrections from the layouts shown on the drawings. Record of changes may be kept by accurately making all changes on a set of prints during the progress of the job.
- B. Exact location of all underground utility service entrances and their connections to utility mains, well heads, loop piping and all valves, etc., which will be concealed in the finished work shall be accurately indicated on the drawings by measured distances.
- C. Upon completion of the work and prior to final payment, the contractor shall furnish to the Architect, one set of "contractor revised" prints, legibly and accurately marked to indicate all changes, additions, deletions, etc., from the contract drawings.
- D. Contractor shall include all addendum items and field change order information on the revised drawings. Revise all schedules shown on the drawings to reflect the actual model numbers, capacities and electrical characteristics of substituted equipment.

1.08 COORDINATION OF WORK

- A. It is understood that while Drawings are to be followed as closely as circumstances permit, this Division will be held responsible for installation of systems according to the true intent and meaning of the Contract Documents. Anything not clear or in conflict will be explained by making application to Architect. Should conditions arise where certain changes would be advisable, secure Architect's approval of these changes before proceeding with the work.
- B. Coordinate work of various trades in installing inter-related work. Before installation of mechanical items, make proper provisions to avoid interferences in a manner approved by Architect. Changes required in work specified in Division 22 caused by neglect to do so shall be made at no cost to Owner.
- C. Provide inserts and supports required by Division 22 unless otherwise noted. Furnish sleeves, inserts, supports and equipment that are an integral part of other divisions of the Work to Sections involved in sufficient time to be built into construction as the Work proceeds. Locate these items and see that they are properly installed. Expense resulting from improper location of installation of items above shall be borne by Division 22.
- D. Be responsible for required digging, cutting and patching incident to work of this Division and make required repairs afterward to satisfaction of Architect. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns or trusses.
 - 1. Each Section of this Division shall bear expense of cutting, patching, repairing and replacing of work of other Sections required because of its fault, error and tardiness or because of damage done by it.
 - 2. Cutting, patching, repairing and replacing pavements, sidewalks, roads and curbs to permit installation of work of this Division is responsibility of Section installing work.
- E. Adjust locations of pipes, etc. to accommodate work from interferences anticipated and encountered. Determine exact route and location of each pipe and duct prior to fabrication.
 - 1. Make offsets, transitions, and changes in direction of pipes, as required to maintain proper headroom and pitch of sloping lines whether or not indicated on Drawings.
- F. Slots and openings through floors, walls, ceilings and roofs shall be provided by other Divisions in their respective materials. This Division shall see that they are properly located and do any cutting and patching caused by its neglect to do so.

1.09 EXCAVATION AND TRENCHING FOR PIPING

- A. Excavate to the depths indicated on the Drawings or as otherwise specified. Excavated materials not required or suitable for backfill or fill shall be removed from the site. Do such grading as is necessary to prevent surface water from flowing into trenches or other excavations. Water accumulated therein shall be removed by pumping or by other approved method. Do sheeting and

shoring as may be necessary for protection of the work and for safety of personnel. Excavation shall be by open cut except that short sections of trench may be tunneled if the pipe can be safely and properly installed and backfill can be properly tamped in such tunnel sections.

- B. Trench Excavation: Bottom of trench for tile or concrete pipe shall be rounded so that at least the bottom quadrant of the pipe rests firmly on undisturbed soil for as nearly the full length of the barrel as proper jointing operations will permit. Grade bottom of trenches to provide uniform bearing and support for each section of pipe on undisturbed soil. Where rock is encountered, excavate to a minimum over-depth of 4" below trench depths indicated on the drawings or specified. Over-depths in rock excavation and unauthorized over-depths shall be backfilled. Whenever wet or otherwise unstable soil incapable of properly supporting the pipe is encountered, such soil shall be removed and the trench backfilled to proper grade as hereinafter specified.
- C. Depth of Cover: Trenches shall be of depth that will provide a minimum depth of cover of three feet for water, sanitary and storm sewer and two feet for gas piping from existing grade or from indicated finish grade, whichever is lower, unless otherwise specifically shown.

1.10 BACKFILLING OF TRENCHES

- A. Trenches shall not be backfilled until required pressure and other tests have been performed and inspections of utility and Code officials have been accomplished, and until the utilities systems as installed conform to requirements of drawings and specifications.
- B. Backfill trenches with excavated materials consisting of earth, sandy clay, sand, gravel, soft shale or other approved materials, free from clods of earth or stones over 2-1/2 inch maximum dimension, deposited in 6 inch layers and compacted to 95% of the maximum laboratory density determined in accordance with ASTM D-698, Moisture-Density Relation of Soils. Tests for maximum density will be made with expense borne by contractor. If fills fail to meet the specified densities, the contractor shall remove and re-compact the fill until specified densities are achieved.
- C. Tests for Displacement of Sewers: After the trench has been backfilled to 2 feet or more above the pipe, if the pipe shows poor alignment, displaced pipe, or any other defects, such defects shall be remedied by the contractor at his expense.

1.11 GENERAL PIPING INSTALLATION

- A. Furnish and install a complete system of piping. The piping drawings are diagrammatic and indicate the general location and connections. If the size of any piping is not clearly evident, obtain instructions from the Architect before proceeding with the work. The piping may have to be offset, lowered or raised as required or as directed at the site. This does not relieve the contractor from responsibility for the proper erection of systems of piping in every respect suitable for the work intended. Piping systems that are not to be installed complete shall be so noted.
- B. Erection: Piping shall be cut accurately for fabrication to measurements established at the construction site. Pipe shall be worked into place without springing and/or forcing. Remove all burrs and cutting slag by reaming or other cleaning methods. Changes in direction shall be made with fittings, except that bending of pipe will be permitted, providing a hydraulic pipe bender is used. Bent pipe showing kinks, wrinkles, or other malformation will not be acceptable. Piping shall be arranged so as not to interfere with removal of other equipment or devices nor to block access manholes or other access openings. Piping shall be installed to insure noiseless circulation.
- C. Minimum slope of piping shall be in accordance with the following unless otherwise specifically shown on the drawings or specified:

Type of Piping Fluid Conveyed	System Component	Length for 1" Fall	Direction of Fall
Sewer, Sanitary	Main or Branch	4 feet	Direction of flow
Domestic Water	Main or branch	40 feet	Back to mains

Sanitary and storm drainage piping 4 inches in diameter and larger may be pitched with one (1) inch fall for eight (8) foot lengths.

- D. Protection: Open ends of pipes and equipment shall be properly capped or plugged to keep dirt and other foreign materials out of the system. Plugs or rags, wood, cotton, concrete, waste or similar materials must not be used in plugging.
- E. Installation of Underground Pipe: Bottom of trench shall be shaped to give substantially uniform circumferential support to lower third of each pipe. Pipe shall be laid true to line and grade in such manner as to form a close concentric joint with adjoining pipe and to prevent sudden offsets to flow line. As work progresses, interior of pipe shall be cleared of dirt and superfluous materials. Where cleaning after laying is difficult because of small pipe size, a suitable swag or drain shall be kept in pipe and pulled forward past each joint immediately after jointing has been completed. Trenches shall be kept free from water until pipe jointing has set and pipe shall not be laid when condition of trench or weather is unsuitable for such work.
- F. Cleaning and Flushing: Contractor shall take every precaution to remove dirt, grease, and all other foreign matter from each length of piping before making connections in the field. After each section of piping is installed, it shall be flushed with clean water except where specified otherwise.
- G. Pipe Sizes: If the size of any piping is not clearly evident in the drawings, the contractor shall request instructions from the Architect as to the proper sizing. Any changes resulting from the contractor's failure to request clarification shall be at his expense.

1.12 THERMAL AND MOISTURE PROTECTION

- A. Install flashing, counterflashing and caulk or seal all penetrations in exterior walls or floors as required to prevent exterior moisture from entering building.

1.13 EQUIPMENT AND MATERIALS

- A. Product Approvals:
 - 1. If approval is received to use other than specified items, responsibility for specified capacities and insuring that items to be furnished will fit space available lies with this Division.
 - 2. In the event other than specified equipment is used and will not fit job site conditions, this Division assumes responsibility for replacement with items named in specification.
- B. Use domestic made pipe, pipe-fittings and motors on project.
- C. Insure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connection and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents.
- D. Follow Manufacturer's directions in delivery, storage, protection and installation of equipment and materials.
 - 1. Promptly notify Architect in writing of conflicts between requirements of Contract Documents and manufacturer's directions and obtain Architect's written instructions before proceeding with work. Bear expenses arising from correcting deficiencies of work that do not comply with Manufacturer's directions or such written instructions from Architect.
- E. Deliver equipment and material to site and tightly cover to protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage (such as controls), in a dry, heated space.

1.14 REVIEW OF MATERIALS AND EQUIPMENT

- A. Furnish complete catalog data for manufactured items of equipment to be used in Work to architect for review within 30 days after award of Contract.

- B. Submit six (6) copies of data in 3-ring binders with tab indices in same order and name as they appear in specification.
 - 1. State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions and other pertinent information. Pertinent information shall include as a minimum those items as scheduled on the drawings. Arrange submittal information to reflect these categories scheduled on the drawings.
 - 2. Provide an index of tab numbers at the front of each binder. List the specification number and category included under each tab as described in the specifications and as scheduled on the drawings.
 - 3. Provide cover sheet for each tab section. List each piece of equipment by name, model number and supplier.
 - 4. Underline applicable data and indicate model being supplied on each submittal sheet.
- C. If data is not submitted as specified or submittal is not complete, it will be returned without review.
- D. Catalog data or shop drawings for equipment which are noted as being reviewed by the Architect, shall not supersede Contract Documents.
- E. Review comments of Architect shall not relieve this Division from responsibility for deviations from Contract Documents unless Architects' attention has been called to such deviations in writing at the time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.
- F. Check work described in catalog data with Contract Documents for deviations and errors.

1.15 GUARANTEE

- A. The work herein specified shall be free from defects in workmanship and material under normal use and service. If, within twelve (12) months from date of substantial completion and Owner acceptance of the work herein described, any of the equipment or materials, or in the installation thereof, is found to be defective in workmanship or material, it shall be replaced or repaired free of charge.
- B. The Contractor shall, after completion of the original test of the installation, and acceptance of the Architect, provide any service incidental to the proper performance of the mechanical systems under guarantees outlined above for a period of one (1) year.

1.16 FINALLY

- A. It is the intention that this specification shall provide a complete installation except as hereinbefore specifically excepted. All accessory construction and apparatus necessary or advantageous in the operation and testing of the work shall be included.
- B. The omission of specific reference to any part of the work necessary for such complete installation shall not be interpreted as relieving this Contractor from furnishing and installing such parts.

PART 2 PRODUCTS

Not Applicable.

PART 3 EXECUTION

Not Applicable.

END OF SECTION

SECTION 22 0513
COMMON ELECTRICAL REQUIREMENTS FOR PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section specifies the basic requirements for electrical components which are an integral part of packaged PLUMBING equipment. These components include, but are not limited to factory-installed motors furnished as an integral part of plumbing equipment.
- B. This section specifies the basic requirements for electrical components required to be furnished under Division 22, which are to be turned over to and installed by Division 26. These components include but are not limited to motors.
- C. Specific electrical requirements (i.e., horsepower and electrical characteristics) for plumbing equipment are scheduled on the drawings.

1.02 RELATED SECTIONS

- A. Not Applicable.

1.03 REFERENCES

- A. NEMA Standards MG-1: Motors and Generators.
- B. NEMA Standard ICS 2: Industrial Control Devices, Controllers and Assemblies.
- C. NEMA Standard 250: Enclosures for Electrical Equipment.
- D. NEMA Standard KS 1: Enclosed Switches.
- E. Comply with National Electrical Code (NFPA 70).
- F. Compliance and Labeling: Provide motors and starters which have been listed and labeled by a nationally recognized testing facility engaged in and equipped to test electrical equipment and materials.

1.04 SUBMITTALS

- A. No separate submittal is required. Submit product data for motors, starters, and other electrical components with submittal data required for the equipment for which it serves, as required by the individual equipment specification sections.

1.05 QUALITY ASSURANCE

- A. Electrical components and materials shall be UL labeled.

PART 2 PRODUCTS

2.01 MOTORS

- A. The following are basic requirements for simple or common motors, for special motors detailed and specific requirements are specified in the individual equipment specifications.
 - 1. Torque characteristics shall be sufficient to satisfactorily accelerate the driven loads.
 - 2. Motor sizes shall be large enough so that driven load will not requirement the motor to operate in the service factor range.
 - 3. 2-speed motors shall be 2 separate windings, on a polyphase motor.
 - 4. Temperature Rating: Rated for 40 deg. environment, with maximum 50 °C temperature rise for continuous duty at full load (Class A Insulation).
 - 5. Starting capability: Frequency of starts as indicated by automatic control system and not less than 5 evenly timed spaced starts per hour for manually controlled motors.
 - 6. Service Factor: 1.15 for poly-phase motors and 1.35 for single phase motors.

- B. Motor Construction: NEMA Standard MG 1, general purpose, continuous duty, Design "B", except "C" where required for high starting torque.
1. Frames: NEMA Standard No. 48 or 54; use driven equipment manufacturer's standards to suit specific application.
 2. Bearings:
 - a. Ball or roller bearings with inner and outer shaft seals;
 - b. Regreaseable bearings, except permanently sealed where motor is normally inaccessible for regular maintenance.
 - c. Designed to resist thrust loading where belt drives or other drives produce lateral or axial thrust in motor.
 - d. For fractional horsepower, light duty motors, sleeve type bearings are permitted.
 3. Enclosure Type:
 - a. Open drip-proof motors for indoor use where satisfactorily housed or remotely located during operation;
 - b. Guarded drip-proof motors where exposed to contact by employees or building occupants;
 - c. Weather protected Type I for outdoor use, Type II where not housed;
 4. Overload Protection: Built-in thermal overload protection and, where indicated, internal sensing device suitable for signaling and stopping motor at starter.
 5. Noise Rating: "Quiet" rating on motors located in occupied spaces of building.
 6. Efficiency: Provide "Energy Efficient" motors with a minimum efficiency as scheduled in accordance with IEEE Standard 112, test method B. If efficiency not specified, motors shall have a minimum efficiency as listed below.

1HP	80% Efficiency	10HP	87%
1-1/2 to 2HP	82%	15HP	89%
3HP	83%	20HP	90%
5HP	84%	25HP and up	91%
7-1/2 HP	85%		
- C. Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 Baldor Electric Co.
 Century Electric, Inc.
 General Electric Co.
 Marathon Electric Mfg. Co.
 Reliance Electric Co.
 Westinghouse Electric Corp.
- D. Nameplate: Indicate the full identification of manufacturer, ratings, characteristics, construction, special features and similar information.

PART 3 EXECUTION

Not Applicable.

END OF SECTION

SECTION 22 0516
EXPANSION COMPENSATION FOR PLUMBING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Basic Requirements for expansion compensation for the plumbing system.

1.02 RELATED SECTIONS

- A. Section 22 0584 – Vibration and Seismic controls for Plumbing Piping and Equipment.
- B. Section 22 1005 – Plumbing Piping.
- C. Section 31 2316 – Excavation.

1.03 SUBMITTALS

- A. Product Data: Submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of expansion compensation product. Submit schedule showing Manufacturer's figure number, size, location, and features for each required expansion compensation product.
- B. Shop Drawings: Submit shop drawings for fabricated expansion loops indicating location, dimensions, pipe sizes, location and method of attachment of anchors.
- C. Maintenance Data: Submit maintenance data and spare parts lists for each type of expansion compensation product. Include this data in Maintenance Manual.

1.04 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of expansion compensation products of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Comply with standards of the Expansion Joint Manufacturer's Association (EJMA).

PART 2 PRODUCTS

2.01 PIPE ALIGNMENT GUIDES

- A. General: Provide pipe alignment guides on both sides of expansion joints, and elsewhere as indicated. Construct with 4 finger spider traveling inside a guiding sleeve, with provision for anchoring to building substrate.
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering pipe alignment guides which may be incorporated in the work include, but are not limited to the following:
 - Keflex, Inc.
 - Metraflex (The) Co.

PART 3 EXECUTION

3.01 EXPANSION LOOPS

- A. General: Fabricate expansion loops as indicated, in locations indicated, and elsewhere as determined by Installer for adequate expansion of installed piping system. Subject loop to cold spring which will absorb 50% of total expansion between hot and cold conditions. Provide pipe anchors and pipe alignment guides as indicated, and elsewhere as determined by Installer to properly anchor piping in relationship to expansion loops.

END OF SECTION

**SECTION 22 0519
METERS AND GAUGES FOR PLUMBING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Extent of meters and gauges required by this section is indicated on drawings and/or specified in other Division 22 sections.
- B. Types of meters and gauges specified in this section include the following:
 - 1. Temperature Gauges and Fittings:
 - Glass Thermometers
 - Dial Type Insertion Thermometers
 - Thermometer Wells
 - Temperature Gauge Connector Plugs
 - 2. Pressure Gauges and Fittings:
 - Pressure Gauges
 - Pressure Gauge Cocks
 - Pressure Gauge Connector Plugs
- C. Meters and gauges furnished as part of factory-fabricated equipment are specified as part of the equipment assembly in other Division 22 sections.

1.02 RELATED SECTIONS

- A. Section 22 1005 – Plumbing Piping.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of meters, gauges, and fittings, or types and sizes required, whose products have been in satisfactory use in similar service for not less than five (5) years.
- B. UL Compliance: Comply with applicable UL standards pertaining to meters and gauges.
- C. ANSI and ISA Compliances: Comply with applicable portions of ANSI and Instrument Society of America (ISA) standards pertaining to construction and installation of meters and gauges.

1.04 SUBMITTALS

- A. Product Data: Submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of meter, gauge and fitting. Include scale range, ratings, and calibrated performance curves, certified where indicated. Submit meter, gauge and fitting schedule shown manufacturer's figure number, scale range, location, and accessories for each meter, gauge and fitting.
- B. Maintenance Data: Submit maintenance data and spare parts lists for each type of meter and gauge. Include this data in maintenance manual.

PART 2 PRODUCTS

2.01 TEMPERATURE GAUGES

- A. Glass Thermometers:
 - 1. General: Provide glass thermometers of materials, capacities and ranges indicated, designed and constructed for use in service indicated.
 - 2. Case: Die cast aluminum, finished in baked epoxy enamel, clear acrylic plastic front, spring secure, 9 inches long.
 - 3. Adjustable Joint: Die cast aluminum, finished to match case, 180 ° adjustment in vertical plane, 360 ° adjustment in horizontal plane, with locking device.
 - 4. Tube and Capillary: Mercury filled, magnifying lens, 1 percent scale range accuracy, shock

- mounted.
5. Scale: Satin faced, non-reflective aluminum permanently etched markings.
 6. Stem: Copper-plated steel, or brass, for separable socket, length to suit installation.
 7. Range: Conform to the following:
 - a. Hot Water: 30 - 240 °F with 2 °F scale divisions (0 ° - 160 °Celsius) with 1 °Celsius scale divisions.
 - b. Chilled Water: 30 - 180 °F with 2 °F scale divisions (0 -100 °Celsius) with 1 °Celsius scale divisions.
 8. Available Manufacturers: Subject to compliance with requirements, manufacturers offering glass thermometers which may be incorporated in the work include, but are not limited to, the following:
Marshalltown Instruments, an Eltra Co.
Terice (H.O.) Co.
Weiss (Albert A) & Son, Inc
- B. Dial Type Insertion Thermometers:
1. General: Provide diameter type insertion thermometers of materials, capacities and ranges indicated, designed and constructed for use in service indicated.
 2. Type: Bi-metal, stainless steel case and stem, 1 inch diameter dial, dust and leak proof, 1/8 inch diameter stem with nominal length of 5 inches.
 3. Accuracy: 0.5 percent of dial range.
 4. Range: Conform to the following:
 - a. Hot Water: 0 - 220 °F (-10 ° - 110 °C).
 5. Available Manufacturers: Subject to compliance with requirements, manufacturers offering direct mount dial type insertion thermometers which may be incorporated in the work include, but are not limited to, the following:
Marsh Instrument Co, Unit of General Signal.
Taylor Instrument Process Control Div. of Sybron Corp.
Terice (H.O.) Co.
Weiss (Albert A.) & Son, Inc
- C. Thermometer Separable Wells:
1. General: Provide thermometer wells constructed of brass or stainless steel, pressure rated to match piping system design pressure. Provide 2inch extension for insulated piping.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering thermometer wells which may be incorporated in the work include, but are not limited to the following:
Marsh Instrument Co., Unit of General Signal.
Terice (H.O.) Co.
Weiss (Albert A.) & Sons, Inc.
- D. Temperature Gauge Connector Plugs:
1. General: Provide temperature gauge connector plugs pressure rated for 500 psi and 200 degrees F. Construct of brass and finish in nickel-plate, equip with 1/2 inch NPT fitting, with self-sealing valve core type neoprene gasketed orifice suitable for inserting 1/8 inch O.D. probe assembly from dial type insertion thermometer. Equip orifice with gasketed screw cap and chain. Provide extension, length equal to insulation thickness for insulated piping.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering temperature gauge connector plugs which may be incorporated in the work include, but are not limited to, the following:
Peterson Engineering Co.

2.02 PRESSURE GAUGES AND FITTINGS

- A. Pressure Gauges:
1. General: Provide pressure gauges of materials, capacities, and ranges indicated, designed

- and constructed for use in service indicated.
2. Type: General use, 1 percent accuracy, ANSI B40.1, Grade-A, phosphor bronze bourbon type, bottom connection.
 3. Case: Drawn steel or brass, clear acrylic plastic lends, 4-1/2 inch diameter.
 4. Connector: Brass with 1/4 inch male NPT. Provide protective syphon when used for steam service.
 5. Scale: White coated aluminum with permanent etched markings.
 6. Range: Conform to the following:
 - a. Water: 0 - 100 psi.
 7. Available Manufacturers: Subject to compliance with requirements, manufacturers offering pressure gauges which may be incorporated in the work include, but are not limited to, the following:
Ametek, U.S. Gauge Div.
Marsh Instrument Co., Unit of General Signal.
Marshalltown, an Eltra Company
Terice (H.O.) Co.
Weiss (Albert A.) & Son, Inc
- B. Pressure Gauge Cocks:
1. General: Provide pressure gauge cocks between pressure gauges and gauge tees on piping systems. Construct gauge cock of brass with 1/4 inch female NPT on each end, and "T" handle brass plug.
 2. Syphon: 1/4 inch straight coil constructed of brass tubing with 1/2 inch male NPT on each end.
 3. Snubber: 1/4 inch brass bushing with corrosion resistant porous metal disc, through which pressure fluid is filtered. Select disc material for fluid served and pressure rating.
 4. Manufacturers: Subject to compliance with requirements, manufacturers offering pressure gauge cocks which may be incorporated in the work include, but are not limited to, the following:
Ametek, U.S. Gauge Div.
Marsh Instrument Co., Unit of General Signal.
Marshalltown, An Eltra Company
Terice (H.O.) Co.
Weiss (Albert A.) & Son, Inc
- C. Pressure Gauge Connector Plugs:
1. General: Provide pressure gauge connector plugs pressure rated for 500 psi and 200 degrees Fahrenheit. Construct of brass and finish in nickel-plate, equip with 1/2 inch NPT fitting, with self-sealing valve core type neoprene gasketed orifice suitable for inserting 1/8 inch O.D. probe assembly from dial type insertion pressure gauge. Equip orifice with gasketed screw cap and chain. Provide extension, length equal to insulation thickness for insulated piping.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering pressure gauge connector plugs which may be incorporated in the work include, but are not limited to, the following:
Peterson Engineering Co.

PART 3 EXECUTION

3.01 INSTALLATION OF TEMPERATURE GAUGES

- A. General: Install temperature gauges in vertical upright position, and tilted so as to be easily read by observer standing on floor.
- B. Thermometer Separable Wells: Install in piping for each temperature gauge.
- C. Temperature Gauge Connector Plugs: Install in piping tee where indicated, located on pipe at

most readable position. Secure cap.

3.02 INSTALLATION OF PRESSURE GAUGES

- A. General: Install pressure gauges in piping with pressure gauge cock, located on pipe at most readable position.
- B. Locations: Install in the following locations, and elsewhere as indicated:
 - 1. At suction and discharge of each hydronic pump or as a common gauge, if so detailed on drawings.
 - 2. At each pressure reducing valve on both the high pressure and low pressure sides.
 - 3. At water service outlet.
- C. Pressure Gauge Cocks: Install in piping tee with snubber.
- D. Pressure Gauge Connector Plugs: Install in piping tee where indicated, located on pipe at most readable position. Secure cap.

END OF SECTION

**SECTION 22 0548
VIBRATION AND SEISMIC CONTROLS FOR PLUMBING**

PART 1 GENERAL

1.01 SCOPE

- A. The requirements for seismic protection measures to be applied to plumbing equipment specified herein are in addition to any other items called for in other sections of these specifications. The seismic protection shall conform to Category D of the 2007 Arkansas Fire Prevention Code. The Plumbing equipment shall include the following items to the extent required on plans or in other sections of the following specifications:
- Piping, 2-1/2 inches or larger
 - Components weighing more than 75 pounds
 - Water Heaters

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Basic Requirements - Section.

1.03 APPLICABLE PUBLICATIONS

- A. American Society of Civil Engineers: ASCE 7
- B. Federal Specifications:
- 1. RR-W-410D

1.04 REGULATORY REQUIREMENTS

- A. Conform to the 2007 Fire Prevention Code.

PART 2 PRODUCTS

- 2.01** Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for the purpose specified and shown.
- 2.02** Sway brace of structural steel conforming to ASTM A36.
- 2.03** Mechanical couplings of the sleeve type to provide a tight flexible joint under all reasonable conditions.
- 2.04** Square-head bolts and heavy hexagon nuts, ANSI B18.2.1 and B12.2.2 and ASTM A307 or 306.
- 2.05** Guy wires where required shall conform to Fed Spec. RR-W-441 as follows:
- | | |
|-------------------------|-----------------|
| 5/32" diameter | Type V, Class 1 |
| 3/16" to 5/16" diameter | Type V, Class 2 |
| 1/4" to 5/8" diameter | Type I, Class 2 |

PART 3 EXECUTION

- 3.01** All rigidly mounted equipment will have a minimum of four (4) anchor bolts securely fastened through bases or backs. Anchor bolts must conform to ASTM A307. Anchor bolts shall have an embedded, straight length equal to at least twelve times the nominal diameter of the bolt and shall conform to the applicable tables for various equipment weights.

Maximum Equipment

Weight (Pounds)

500	1/2
1,000	1/2
5,000	1/2
10,000	1/2
20,000	1/2
30,000	5/8

50,000	3/4
100,000	1

Based on four (4) bolts per item; a minimum embedment of 12 bolt diameters, a minimum bolt spacing of 16 bolt diameters, and a minimum edge distance of 12 bolt diameters. Use an equivalent total cross-sectional area when more than four bolts per item are provided. Anchor bolts that exceed the normal depth of equipment foundation piers or pads shall either extend into the concrete floor or the foundation shall be increased in depth to accommodate bolt lengths. When the height-to-width ratio of the equipment exceeds 8.9, overturning must be investigated. Expansion anchors shall not be used to resist seismic or vibratory loads unless test data are provided to verify the adequacy of the specific anchor and application. In no case shall the expansion anchor size be less than that required for bolts in the preceding table. Selection of anchor bolts for vibration isolation devices and/or snubbers to equipment base and foundations shall follow the same procedure, except that an equipment weight equal to five times the actual equipment weight shall be used.

- 3.02** Equipment Sway Bracing shall be provided for all items supported from the overhead floor or roof structures. Braces shall consist of angles, rods, bars, or pipes run at a 45° angle from the equipment frame to the building structure secured at both ends with no less than 1/2 inch bolts. Braces shall conform to all applicable codes and standards for Seismic Classification. Bracing shall be provided in two planes of directions, 90° apart, for each item of equipment. Details of all equipment bracing shall be submitted for approval. Instead of bracing with vertical supports, these items may be supported with hangers inclined at 45°, provided that supporting members are properly sized to supporting the operating weight of equipment when inclined at a 45° angle.
- 3.03** Sway bracing shall be provided for all 2-1/2 inch or larger pipes, not individually supported with hangers 12 inches or less in length.
- 3.04** All components that weight more than 75 pounds shall have a safety chain or safety cable in addition to its other support.
- 3.05** Water heaters and pumps shall be bolted to the housekeeping pads per Paragraph 3.01.
- 3.06** Powder-activated fasteners (shot pins) shall not be used for anchorage.
- 3.07** Vibration isolators shall have a bumper restraint in each horizontal direction, and vertical restraints shall be provided where required to resist overturning.
- 3.08** Oversized plate washers extending to the equipment wall shall be used at bolted connections through the base sheet metal if the base is not reinforced with stiffeners or not capable of transferring the required loads.

END OF SECTION

SECTION 22 0553
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Extent of mechanical identification work required by this section is indicated on drawings and/or specified in other Division 23 sections.
- B. Types of identification devices specified in this section include the following:
 - Plastic Pipe Markers
 - Valve Tags
 - Valve Schedule Frames
 - Engraved Plastic-Laminate Signs
 - Ceiling Tacks
- C. Mechanical identification furnished as part of factory-fabricated equipment, is specified as part of the equipment assembly in other Division 23 sections.

1.02 RELATED SECTIONS

- A. Not Applicable.

1.03 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of identification devices of types and sizes required, whose products have been in satisfactory use in similar service for not less than five (5) years.
- B. ANSI Standards: Comply with ANSI A13.1 for lettering size, colors, and viewing angles of identification devices.

1.04 SUBMITTALS

- A. Product Data: Submit product specifications and installation instructions for each identification material and device desired.
- B. Samples: Submit samples of each color, lettering style and other graphic representation required for each identification material or system.
- C. Schedules: Submit valve schedule for each piping system, typewritten and reproduced on 8-1/2" x 11" bond paper. Tabulate valve number, piping system, system abbreviation (as shown on tag), location of valve (room or space) and variations for identification (if any). Mark valves which are intended for emergency shut-off and similar special uses, by special "flags", in margin of schedule. In addition to mounted copies, furnish extra copies for Maintenance Manuals as specified in Division 1.

PART 2 PRODUCTS

2.01 MECHANICAL IDENTIFICATION MATERIALS

- A. General: Provide manufacturer's standard products of categories and types required for each application as referenced in other Division 21 sections. Where more than single type is specified for application; selection is Installer's option, but provide single selection for each product category.
- B. Plastic Pipe Markers:
 - 1. General: Provide manufacturer's standard pre-printed, flexible or semi-rigid, permanent, color-coded, plastic-sheet pipe markers, complying with ANSI A13.1.
 - a. Small Pipes: For external diameters less than 6 inches (including insulation if any), provide full-band pipe markers, extending 360 degrees around pipe at each location, fastened by one of the following methods:

- (1) Snap-on application of pre-tensioned semi-rigid plastic pipe marker.
 - (2) Adhesive lap joint in pipe marker overlap.
 - (3) Laminated or bonded application of pipe marker to pipe (or insulation).
 - b. Large Pipes: For external diameters of 6 inches and larger (including insulation if any), provide either full-band or strip-type pipe markers, but not narrower than 3 times letter height (and of required length), fastened by one of the following methods:
 - (1) Laminated or bonded application of pipe marker to pipe (or insulation)
 - (2) Strapped-to-pipe (or insulation) application of semi-rigid type, with manufacturer's standard stainless steel bands.
 - c. Lettering: Manufacturer's standard pre-printed nomenclature which best describes piping system in each instance, as selected by Architect/Engineer in cases of variance with names as shown or specified.
 - d. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as separate unit of plastic.
 - e. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide, by 4 mil thick and manufactured for direct burial service.
- C. Valve Tags:
 - 1. At the Contractor's option, provide one of the following:
 - a. Brass Valve Tags: provide 19-gauge polished brass valve tags with stamp-engraved piping system abbreviation in 1/4 inch high letters and sequenced valve numbers 1/2 inch high and with 5/32 inch hole for fastener. Provide 1-1/2 inch diameter tags, except as otherwise indicated.
 - b. Plastic Laminate Valve Tags: Provide manufacturer's standard 3/32 inch thick engraved plastic laminate valve tags, with piping system abbreviation in 1/4 inch high letters and sequenced valve numbers 1/2 inch high, and with 5/32 inch hole for fastener. Provide 1-1/2 inch square black tags with white lettering, except as otherwise indicated.
 - 2. Valve Tag Fasteners: Manufacturer's standard solid brass chain (wire link or beaded type), or solid brass S-hooks of the sizes required for proper attachment of tags to valves, and manufactured specifically for that purpose.
- D. Valve Schedule Frames:
 - 1. General: For each page of the valve schedule, provide a glazed display frame, with screws for removable mounting on walls. Provide frames of rigid plastic or metal, with plastic glazing.
- E. Engraved Plastic-Laminate Signs:
 - 1. General: Provide engraving stock melamine plastic laminate, complying with FS L- P-387, in the sizes and thicknesses indicated, engraved with engraver's standard letter style of the sizes and wording indicated, black with white core (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
 - 2. Thickness: 1/16 inch for units up to 20 square inches or 8 inch length; 1/8 inch for larger units.
 - 3. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.
- F. Available Manufacturers: Subject to compliance with requirements, manufacturers offering plastic pipe markers which may be incorporated in the work include, but are not limited to, the following:
 Seton Name Plate Company
 EMED Co., Inc.
 Approved equal

2.02 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in mechanical identification work, with corresponding designations shown, specified or scheduled. Provide

numbers, lettering and wording as indicated or, if not otherwise indicated, as recommended by manufacturer or as required for proper identification and operation/ maintenance of plumbing systems and equipment.

- B. Multiple Systems: Where multiple systems of same generic name are shown and specified, provide identification which indicates individual system number as well as service.

PART 3 EXECUTION

3.01 APPLICATION AND INSTALLATION

- A. General Installation Requirements:
 - 1. Coordination: Where identification is to be applied to surfaces which require insulation, painting or other covering or finish including valve tags in finished mechanical spaces, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.
- B. Piping System Identification:
 - 1. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces, (shafts, tunnels, plenums), exterior non-concealed locations and above removable acoustical ceilings.
 - a. Near each valve and control device.
 - b. Near each branch, excluding short take-offs for fixtures, mark each pipe at branch, where there could be question of flow pattern.
 - c. Near locations where pipes pass through walls or floors/ceilings, or enter non-accessible enclosures.
 - d. At access doors, manholes and similar access points which permit view of concealed piping.
 - e. Near major equipment items and other points of origination and termination.
 - f. Spaced intermittently at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.
 - g. On piping above removable acoustical ceilings.
- C. Valve Identification:
 - 1. General: Provide valve tag on every valve, cock and control device in each piping system.
 - 2. Mount valve schedule frames and schedules in machine rooms where indicated or, if not otherwise indicated, where directed by Architect/Engineer.
 - a. Where more than one major machine room is shown for project, install mounted valve schedule in each major machine room, and repeat only main valves which are to be operated in conjunction with operations of more than single machine room.
- D. Plumbing Equipment Identification:
 - 1. General: Install engraved plastic laminate sign on or near each major item of mechanical equipment and each operational device, as specified herein if not otherwise specified for each item or device. Provide signs for the following general categories of equipment and operational devices:
 - a. Main control and operating valves, including safety devices and hazardous units such as gas outlets.
 - b. Pumps and similar motor-driven units.
 - c. Fans, blowers, primary balancing dampers and mixing boxes.
 - d. Central-station units.
 - e. Tanks and pressure vessels.
 - f. Motor starters and other control equipment.
- E. Refer to Division 22 sections for identification requirements at central-station mechanical control center; not work of this section.

- F. Refer to Division 26 sections for identification requirements of electrical work; not work of this section.
- G. Lettering Size: Minimum 3/8 inch high lettering for name of unit where viewing distance is less than 2'-0"; 3/4 inch high for distances up to 6'-0"; and proportionately larger lettering for greater distances. Provide secondary lettering of 2/3 to 3/4 the size of principal lettering.
- H. Text of Signs: In addition to name of identified unit, provide lettering to distinguish between multiple units, and warn of hazards and improper operations.
- I. Operational valves and similar minor equipment items located in non-occupied spaces (including machine rooms) may, at installer's option, be identified by installation of plasticized tags in lieu of engraved plastic signs.

END OF SECTION

**SECTION 22 0719
PLUMBING PIPING INSULATION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulation Requirements for complete plumbing piping system.

1.02 RELATED SECTIONS

- A. Section 22 0500 – Common Work Results for Plumbing.
- B. Section 22 0548 – Vibration and Seismic Controls for Plumbing Piping and Equipment.
- C. Section 22 0553 – Identification for Plumbing Piping
- D. Section 22 1005 – Plumbing Piping.

1.03 REFERENCES

- A. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM C195 - Mineral Fiber Thermal Insulation Cement.
- C. ASTM C335 - Steady-State Heat Transfer Properties of Horizontal Pipe Insulation.
- D. ASTM C449 - Mineral Fiber Hydraulic-setting Thermal Insulating and Finishing Cement.
- E. ASTM C534 - Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
- F. ASTM C547 - Mineral Fiber Preformed Pipe Insulation.
- G. ASTM C921 - Properties of Jacketing Materials for Thermal Insulation.
- H. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- I. ASTM D2842 - Water Absorption of Rigid Cellular Plastics.
- J. ASTM E96 - Water Vapor Transmission of Materials.

1.04 SUBMITTALS

- A. Submit under provisions of Division 01 and Section 22 0500.
- B. Product Data: Provide product description, list of materials and thickness for each service, and locations.
- C. Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALITY ASSURANCE

- A. Materials: Flame spread/smoke developed rating of 25/100 or less in accordance with ASTM E84, NFPA 255, and UL 723.

1.06 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section with minimum three years experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 22 0500.
- B. Deliver materials to site in original factory packaging, labeled with manufacturer's identification,

including product density and thickness.

- C. Store insulation in original wrapping and protect from weather and construction traffic.
- D. Protect insulation against dirt, water, chemical, and mechanical damage.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

PART 2 PRODUCTS

2.01 GLASS FIBER

- A. Insulation: ASTM C547; rigid molded, noncombustible.
 - 1. "K" value: ASTM C335, 0.24 at 75 °F.
 - 2. Minimum Service Temperature: -20 °F.
 - 3. Maximum Service Temperature: 850 °F.
 - 4. Maximum Moisture Absorption: 0.2 percent by volume.
- B. Vapor Barrier Jacket:
 - 1. ASTM C921, white Kraft paper reinforced with glass fiber yarn and bonded to aluminized film.
 - 2. Moisture Vapor Transmission: ASTM E96; 0.02 perm inches.
 - 3. Secure with adhesive applied to longitudinal laps and butt strips.
 - 4. Secure with vapor barrier mastic.
 - 5. Self-sealing laps may be used provided lap seal is additionally sealed with vapor barrier masters.
 - 6. Maximum Water Vapor Transmission: 0.1 perm.

2.02 APPROVED MANUFACTURERS

- A. Glass Fiber:
 - 1. Owens/Corning Fiberglass.
 - 2. Architect Approved - Other acceptable manufacturers offering equivalent products.
- B. Vapor Barrier Jacket Lap-Adhesive - Compatible with insulation:
 - 1. Foster 25.
 - 2. Architect Approved.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. On exposed piping, locate insulation and cover seams in least visible locations.
- C. Insulated dual temperature pipes or cold pipes conveying fluids below ambient temperature:
 - 1. Provide vapor barrier jackets, factory applied or field applied.
 - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe.
 - 3. Finish with glass cloth and vapor barrier adhesive.
 - 4. PVC fitting covers may be used.
 - 5. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations.
 - 6. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections,

pump bodies, and expansion joints.

- D. For insulated pipes conveying fluids above ambient temperature:
1. Provide standard jackets, with or without vapor barrier, factory applied or field applied.
 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe.
 3. Finish with glass cloth and adhesive.
 4. PVC fitting covers may be used.
 5. For hot piping conveying fluids 140 °F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
 6. For hot piping conveying fluids over 140 °F, insulate flanges and unions at equipment.
- E. Inserts and Shields:
1. Application: Piping 1-1/2 inches diameter or larger.
 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
 3. Insert Location: Between support shield and piping and under the finish jacket.
 4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
- F. Finish insulation at supports, protrusions, and interruptions.
- G. For exterior applications, provide vapor barrier jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor barrier cement. Cover with aluminum or stainless steel jacket with seams located on bottom side of horizontal piping.
- H. For buried piping, provide factory fabricated assembly with inner all-purpose service jacket with self sealing lap, and asphalt impregnated open mesh glass fabric, with one mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.
- I. For heat traced piping, insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size it large enough to enclose pipe and heat tracer. Cover with aluminum jacket with seams located on bottom side of horizontal piping.
- J. Valves and fittings insulated with block insulation shall be finished with insulating cement and troweled to a smooth and uniform finish.

3.03 TOLERANCE

- A. Substituted insulation materials shall provide thermal resistance within 10 percent at normal conditions, as materials indicated.

3.04 GLASS FIBER INSULATION SCHEDULE

A. <u>PIPING SYSTEMS</u>	<u>THICKNESS</u>
Plumbing Systems	
Domestic Hot Water Supply	1 inch
Domestic Hot Water Recirculation	1 inch
Domestic Cold Water (Indoors)	1/2 inch
Domestic Cold Water (Out of Doors)	1 inch

END OF SECTION

**SECTION 22 1005
PLUMBING PIPING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Basic Requirements for complete plumbing piping system.

1.02 RELATED SECTIONS

- A. Section 22 0500 – Common Work Results for Plumbing.
- B. Section 22 0548 – Vibration and Seismic Controls for Plumbing.
- C. Section 22 0553 – Identification for Plumbing Piping and Equipment.
- F. Section 31 2316 – Excavation.

1.03 QUALITY ASSURANCE

- A. Manufacturers shall be firms regularly engaged in manufacturer of plumbing piping products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer shall be a firm with at least 3 years of successful installation experience on projects with plumbing piping system work similar to that required for project.
- C. Comply with applicable provisions of ANSI B31.2 "Fuel Gas Piping", applicable provisions of NFPA 54 (ANSI Z223.1) "National Fuel Gas Code", ANSI Z223.1a "Supplement to National Fuel Gas Code" and with requirements of the local gas company.
- D. Comply with applicable codes and standards.

1.04 SUBMITTALS

- A. Submit under provisions of Division 01 and Section 22 0500.
- B. Product Data: Provide product description, list of materials and thickness for each service, and locations.
- C. Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.

1.05 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section with minimum three years experience.

PART 2 PRODUCTS

2.01 DOMESTIC HOT AND COLD WATER SYSTEMS

- A. Pipe
 - 1. Type "K" hard drawn copper, as made by Mueller Brass Co., for piping underground or beneath concrete slab.
 - 2. Type "L" hard drawn copper, as manufactured by Mueller Brass Co., for above ground applications.
- B. Fittings
 - 1. Wrought copper.
- C. Connections
 - 1. Sweat copper type with Stay-Safe "Bridgit" lead free silver bearing solder with Stay-Clean liquid or Stay-Clean paste flux as manufactured by J. W. Harris Co., Inc. Joints under slabs shall be brazed with Silfos brazing alloy.

D. Valves

1. Use gate valves exclusively unless otherwise specified. All valves shall be by a single manufacturer from the approved list (reference Section 22 1006). Valves shall be for 150psi SWP.
2. All valves shall be brass, of screwed pattern, gland stuffing box, solid wedge double seal for gate valves, non-rising stem.

E. Unions

1. All union connections on piping 2" and smaller shall be ground joint brass union, having brass taper seat and both screw ends hexagonal and shall be designed for a steam working pressure up to 150 pound.

F. Origin

1. Unless specifically specified otherwise, all material and products shall be manufactured in the United States of America.

2.02 SANITARY SEWER, SOIL, WASTE VENT AND STORM PIPING SYSTEMS

A. Piping Above-Floor – PVC Drainage Pipe:

1. All piping shall be PVC (polyvinyl chloride), Schedule 40, DWV, ASTM D-2655-77 with NFS seal of approval. PVC-DWV pipe shall be marked as prescribed in ASTM D-2665 to indicate the manufacturer's name or trademark, the ASTM designation Number D-2665, the nominal pipe size, the material abbreviation PVC and the product abbreviation DWV spaced along the entire pipe length at not more than 2 foot intervals. All pipe and fittings shall be the product of one manufacturer. Pipe shall be stored in lifts and loose pipe shall be stored on racks with a minimum support spacing of 3 feet. Pipe shall be shaded but not covered directly when stored outside in high temperatures. All pipe and fittings shall be approved by the Arkansas State Plumbing Code.
2. Generally, conventional pipe support hanger systems may be used but spacing must be 4 or 5 feet, branch fittings serving trap arms should also be secured to the framing to prevent movement. Hanger straps shall not be so tight as to compress, distort, cut or abrade the piping.
3. Vertical sections and their connecting branches and components shall be secured at each stack base and at sufficiently close intervals to keep the system in alignment and to adequately support the weight of the pipe and its contents.
4. Waste arms for lavatories and urinals shall be DWV copper with cast brass adapters and wrought copper fittings and lead free solder.
5. Exception:
 - a. Exception: The kitchen area shall be piped with cast iron hub-less type waste piping (above floor) to withstand very hot water and frequent rodding.

B. Piping Below-Grade – PVC Drainage Pipe:

1. All piping below grade shall be PVC, Schedule 40, DWV, ASTM D-2655, shall adhere to the installation standards set forth in ASTM D2321 or its equivalent and the bedding and backfilling of PVC pipe shall be completed as described below.
2. For all PVC pipe, the trench excavation shall be extended to a minimum depth of 6 inches below the bottom of the pipe. Where additional excavation is required due to unacceptable soil conditions, the trench bottom shall be brought back up to grade, using Class I or II bedding materials. This bedding material shall be installed in no greater than 8 inch compacted lifts. All bedding material shall be compacted to a minimum density of 90 percent modified proctor as outlined in AASHTO-T180. The intent of this bedding is to provide uniform support for the flexible pipe. The remaining backfill shall be in accordance to the standard details and trench requirements. The Class I or II material shall extend for 6 inches below the pipe to 6 inches above the pipe. The maximum depth of bury for PVC pipe shall be 16 feet. Any depths greater than 16 feet shall require rigid pipe.
3. Exception:

- a. Exception: The kitchen area shall be piped with hub and spigot type cast iron waste piping below floor to withstand very hot water and frequent rodding.
- C. Piping Below-Grade – Hub and Spigot Type (Kitchen Piping):
 - 1. All piping below the floor and extended outside the building shall be standard weight cast iron soil pipe and fittings unless noted otherwise, as manufactured by Tyler Pipe, Charlotte Pipe, or Griffin Pipe. All cast iron soil pipe and fittings shall be of the reinforced hub type, coated inside and outside with coal tar varnish and shall conform to the ASTM "Standard Specifications for Cast Iron Soil Pipe and Fittings".
- D. Soil, waste, drain and vent piping must be of sizes noted and run as indicated on the drawings, and shall be given a uniform grade of ¼ inch per foot wherever possible, but in no case less than 1/8 inch per foot. The soil and waste pipes shall be extended through the roof. Each riser extending through the roof shall project 14" above roofline. Flashing shall be by roofing contractor. Counter flashing shall be by plumbing contractor. Where so shown, connect vents below roof.
- E. Piping Exterior of Building:
 - 1. Sanitary sewer pipe and fittings (exterior of the building) shall be Schedule 40 PVC pipe, same as waste piping.
- F. Pipe Joints
 - 1. PVC Solvent Welded Joints:
 - a. All joints shall first be primed with purple primer/cleaner manufactured for PVC pipe. Do not use water, rags, gasoline, sandpaper or other substitutes for cleaning PVC surfaces.
 - b. The cement shall be a bodied cement of approximately 800 to 1000 centipoise viscosity containing 10-20 percent (by weight) virgin PVC material solvated with tetrahydrofuran (THF). Select the proper cement (Schedule 40-cement for PVC shall be used with Schedule 40 PC pipe).
 - c. Do not use all-purpose cements, ABS cement to joint PVC pipe and fittings. Apply cement with recommended applicators or pure bristle type paintbrush or the recommended size.
 - d. All piping shall be cut squarely and deburred. Remove all excess cement from around the pipe and fittings with a dry cotton rag while cement is still soft. Do not attempt cementing in the rain or the presence of moisture.
- G. Cleanouts
 - 1. Cleanouts shall be provided at the ends and points in change of direction of all drain, soil, and waste pipes and branches thereof, at the foot of each riser, at all offsets, in all horizontal runs at approximately 50 foot intervals for piping 4 inches and smaller and 100 feet for larger piping, and at other points where indicated on the plans or where required.
 - 2. All cleanouts in connection with cast iron pipe, except the traps and fittings on horizontal branches, shall have tapped "Y" fittings of same size as pipe up to 4 inches, and 4 inches for all larger pipes, closed with screw plugs. All other cleanouts in connection with cast iron pipe, except those that occur in finished floor and walls, shall have heavy cast iron ferrules same size as pipe up to 4 inches, and 4 inches for all larger pipe, caulked into hub and closed with a bronze screw plug.
 - 3. All cleanouts in finished floors shall be ZURN "LevelTrol" ZN-1400BP, Wade, or approved equal, with membrane anchorage pan and clamping collar, scoriated nickel-bronze access cover and adjustable frame; bronze cleanout plug shall be straight threaded with tapered shoulder that seals against caulked seat in body. Note the outlet must be "NL" Neo-Loc to accept PVC pipe.
 - 4. All cleanouts in finished walls shall be Zurn ZN-1443-BP, Wade or Jay R. Smith with polished nickel-bronze access cover and adjustable frame; bronze cleanout plus shall be straight threaded with tapered shoulder.

5. All cleanouts on exterior piping of building shall be Zurn Z-1400-BP, Wade, or approved equal, as detailed on the drawings. Note the outlet must be "NL" Neo-Loc outlet to accept PVC piping.

2.03 NATURAL GAS PIPING SYSTEM

- A. Includes:
 1. Necessary labor, materials, appliances and equipment required to provide gas service from street main to meter, building distribution system from (pound to ounce) pressure regulator valve at the building to gas fired equipment connections and accessories as shown on the drawings.
 2. Related Work Specified Elsewhere:
- B. Quality Assurance
 1. Manufacturers shall be firms regularly engaged in manufacturer of natural gas piping products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
 2. Installer shall be a firm with at least 3 years of successful installation experience on projects with natural gas piping system work similar to that required for project.
 3. Comply with applicable provisions of ANSI B31.2 "Fuel Gas Piping", applicable provisions of NFPA 54 (ANSI Z223.1) "National Fuel Gas Code", ANSI Z223.1a "Supplement to National Fuel Gas Code" and with
- C. Natural Gas Piping Materials and Products
 1. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with ANSI B31.2, where applicable; base pressure rating on natural gas piping system maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials use in natural gas piping systems. Where more than one type of material or product is indicated, selection is Installer's option.
- D. Basic Identification
 1. Provide identification complying with Division 22 Basic Materials and Methods, Section 22 0553 "Identification for Plumbing Piping and Equipment".
- E. Piping
 1. Piping inside building shall be ASTM A-120-79, carbon steel, Schedule 40 black steel.
 2. Gas service outside building in ground shall be plastic pipe. Plastic pipe shall be "SDR-11 Driscopipe 6500" with copper trace wire, or approved equal, conforming to ASTM C2513. Connections and transition fittings shall be made by heat fusion, mechanical coupling. Mechanical coupling shall have internal stiffeners. Insulated fittings shall be provided at the meter and in the vertical rise above grade at the building. Transition fittings shall be provided at a minimum of 12 inches from all vertical risers to above grade. Gas piping shall be laid at least 24 inches below grade at all points.
 3. Risers to building and to meter or pressure regulators shall be standard line pipe provided with a mill installed protective covering of Republic "X-Tru-Coat", high density polyethylene applied over an adhesive undercoating. All field joints and fittings shall be protected with Republic "X-Tru-Tape" and primer, applied as per manufacturer's recommendations. Pipe coat/wrap shall extend a minimum of 6 inches above finish grade.
- F. Fittings
 1. Black Pipe:
 - a. Welded forged steel fittings meeting requirements of ASTM A 234-79a, or standard weight malleable iron screwed.
 2. Fittings outside building shall have "X-Tru-Coat" covering.

G. Plug Valves (Cocks)

1. 1 inch and smaller:
 - a. Domestic Water shall be bronze, screw pattern, 125 psig, non-shock W.O.G. operating pressure, square head, lubricated tapered brass plug design, less check, FIP thread.
 - b. Natural gas and HVAC shall be iron, screw pattern, 125 psig, non-shock W.O.G. operating pressure, square head, lubricated tapered brass plug design, less check, FIP thread.
 - c. A.Y. McDonald Mfg. Co. #10686B, Dezurik/Sartell, or A/E approved equal.
2. 1-1/4 inches thru 2 inches:
 - a. Shall be semi-steel, screwed gland type, regular pattern, 200 CWP operating pressure, 400 psig test pressure, square head, lubricated tapered plug, FIP thread and conform to ANSI B2.1; ANSI B16.1; B116.10; API 5B; -A126, Class B and MSS SP-78.
 - b. Rockwell Nordstrom Valves, Inc. #114, Resun or Homestead.
3. 2-1/2 inches thru 4 inches:
 - a. Shall be iron, screw gland type, regular pattern, 200 CWP operating pressure, 400 psig test pressure, square head, lubricated tapered plug design, FIP thread or flanges drilled to ANSI class 125 cast iron flange standard template and conform to ANSI B2.1; ANSI B16.1; B116.10; API 5B; ASTM-A126, Class B and MSS SP-78.
 - b. Rockwell Nordstrom Valves, Inc. #115, Resun or Homestead.
4. 6 inches and larger:
 - a. Shall be iron, bolted gland type, short pattern, 200 CWP operating pressure, 400 psig test pressure, square head, lubricated tapered plug design, flanges drilled to ANSI class 125 cast iron flange standard template and conform to ANSI B2.1; ANSI B16.1; B116.10; API 5B; ASTM-A126, Class B and MSS SP-78.
 - b. Rockwell Nordstrom Valves, Inc. #143, Resun or Homestead.

H. Pressure Regulating Valves

1. Provide single stage, steel jacketed, corrosion-resistant gas pressure regulators; with atmospheric vent, elevation compensator; with threaded ends for 2 inches and smaller, flanged ends for 2-1/2 inches and larger; for inlet and outlet gas pressures, specific gravity, and volume flow indicated.
2. Regulators installed indoors shall be vented to outside full size or larger as required to eliminate excessive back pressure.
3. Regulators installed outdoors shall be installed such that vent face is downward, so as to avoid the entry of water and matter which would interfere with its operation.
4. Regulators shall be equal to Rockwell Mfg. Co. (Equimeter) with internal relief.

2.04 TRAPS AND DRAINS

- A. P-traps shall be placed under all floor drains and where indicated in wastes, and at other points indicated on plans. P-traps shall be Schedule 40 PVC.
- B. Drains shall be Zurn, or approved equal, in accordance with the schedule on the drawings. Note all floor drains shall have "NL" Neo-Loc outlet to accept PVC piping.

2.05 DRAIN PANS

- A. All floor drains, except for those in concrete slab above earthfill, shall be provided with non-plasticized chlorinated polyethylene, "Chloraloy 240", brand concealed water proofing membrane as manufactured by the Noble Company of Grand Haven, Michigan, Compositel Corp. "Composeal", or approved equal. Membrane shall be medium gray in color, textured surface finish both sides, have white or black lettering continuously marked "Chloraloy 240", size 18 inches by 18 inches, turned up at least 1 inch, and meet applicable standards of ASTM. Complete installation shall be in accordance with manufacturer's recommendations.

2.06 ORIGIN

- A. Unless specifically specified otherwise, all material and products shall be manufactured in the United States of America.

PART 3 EXECUTION

3.01 HOT AND COLD WATER PIPING SYSTEMS

- A. For general piping insulation, see Section 22 0719.
- B. Install copper tubing under slabs without joints where possible.
- C. Provide adaptors in copper lines for all valves.
- D. Locate cold water lines a minimum of 12 inches from hot water line.
- E. Before pipes are covered, test systems in presence of Architect at 100 psi hydrostatic pressure for two (2) hours and show no leaks.
- F. Sterilize domestic water system with solution containing at least 250 parts per million of available chloride. Introduce chlorinating materials into system in manner approved by Architect. Allow sterilization solution to remain for 24 hours and open and close valves and faucets several times during that time.
- G. After sterilization, flush solution from system with clean water until residual chlorine content is less than 0.2 parts per million.
- H. Water system will not be accepted until a negative bacteriological test is made on water taken from system and dosing shall be repeated as necessary until such negative test is accomplished. Submit written report of test to Architect for his approval.
- I. Install water hammer arresters as noted on the drawings.
- J. Extend water service piping of size and in location indicated to water service entrance at building. Provide sleeve in foundation wall for water service entry; make entry weathertight. Provide gate valve at water service entry inside building, strainer, pressure gauge, test tee and valve.
- K. Provide hot and cold water piping runouts to fixtures of sizes indicated, but in no case smaller than required by National Standard Plumbing Code.
- L. Connect hot and cold water piping system to mechanical equipment as indicated, and comply with equipment manufacturer's installation instructions. Provide shut-off valve and union for each connection. Provide drain valve on drain connections.

3.02 SANITARY SEWER, SOIL, WASTE, VENT AND STORM PIPING SYSTEMS

- A. Provide floor drains and other specialties as specified in the Schedule on the drawings and set forth in these specifications.
- B. Each fixture and appliance discharging water into sanitary sewer or building sewer lines shall have a seal trap in connection with a complete venting system so gasses pass freely to atmosphere with no pressure or syphon condition on water seal.
- C. Before piping is covered, conduct tests in presence of Architect and correct leaks or defective work. Do not caulk threaded work. Fill waste and vent system to roof level (a minimum of 10 feet) with water and show no leaks for two (2) hours.
- D. Vent entire system to atmosphere. Discharge 14 inches above roof. Joint lines together, in fewest practicable numbers before projecting above roof. Set back vent lines so they will not pierce roof near an edge or valley.
- E. Flash pipes passing through roof with six (6) lb. / sq. ft. lead flashing fitted around pipes and turned down into pipe 1/2 inch with turned edge hammered against pipe wall.

3.03 INSTALLATION OF NATURAL GAS PIPING

- A. Install natural gas distribution piping in accordance with applicable codes and local Utility Company requirements.
- B. Use sealants on metal gas piping threads which are chemically resistant to natural gas. Use sealants sparingly, and apply to only male threads of metal joints.
- C. Remove cutting and threaded burrs before assembling piping.
- D. Do not install defective piping or fittings. Do not use pipe with threads which are chipped, stripped, or damaged.
- E. Plug each gas outlet, including valves, with threaded plug or cap immediately after installation and retain until continuing piping, or equipment connections are completed.
- F. Install minimum 6 inch long drip-legs in gas piping where indicated, and where required by code or regulation.
- G. Install "Tee" fitting with bottom outlet plugged or capped, at bottom of pipe risers.
- H. Use dielectric unions where dissimilar metals are joined together.
- I. Install piping with 1 inch drop in 60 foot pipe run (0.14%) in direction of flow.
- J. Install piping parallel to other piping, but maintain minimum of 12 inch clearance between gas piping and steam or hot water piping above 200 °F.
- K. Wrap and lay underground pipe with minimum of two (2) feet of cover in accordance with local gas utility company regulations and specifications.
- L. Install gas cocks and unions at all final connections to equipment.
- M. Do not use flexible pipe connections.
- N. All field joints and fittings shall be protected with "X-Tru-Tape" and primer.
- O. Bushings will not be accepted.
- P. Test all gas piping with air pump and 3 inch dial gauge to pressure that will maintain 25 psig for 15 minutes.
- Q. Provide sacrificial type cathodic protection for each vertical riser to the building.
- R. Provide 5/8 inch by 8'-0" copper clad steel ground rod, ground rod clamp and No. 6 stranded copper conductor from ground rod to vertical riser at every instance where piping exits the earth.
- S. All exposed steel gas piping must be cleaned, primed and painted with (2) two coats of epoxy or similar paint (color as selected by architect).

3.04 GAS SERVICE

- A. Consult with Gas Company as to extent of its work, meter requirements with consideration of Owner needs, costs, fees, and permits involved. Pay such costs and fees; obtain permits.

END OF SECTION

SECTION 23 0500
COMMON WORK RESULTS FOR HEATING, VENTILATING AND AIR CONDITIONING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Basic Requirements for complete heating, ventilating, and air conditioning system.

1.02 RELATED SECTIONS

- A. Section 23 0548 – Vibration and Seismic Controls for HVAC Piping and Equipment.
- B. Division 23 – All Sections.
- C. Section 31 2316 – Excavation.

1.03 SITE INSPECTION

- A. Examine premises and understand the conditions which may affect the performance of work of this Division before submitting proposals for this work.
- B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

1.04 DRAWINGS

- A. Mechanical drawings show the general arrangement of piping, ductwork, equipment, etc. Follow closely as actual building construction and work of other trades will permit.
- B. Consider architectural and structural drawings part of this work insofar as these drawings furnish information relating to the design and construction of buildings. These drawings take precedence over mechanical drawings.
- C. Because of the small scale of mechanical drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. Investigate structurally and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required to meet conditions.
- D. Record the difference between mechanical work as installed and as shown in Contract Documents on a set of prints of mechanical drawings to be furnished by Architect. Return these prints to Architect after the project. These will be labeled "Contractor Revised Drawings".

1.05 SUBSTITUTIONS

- A. The naming of specified items on the drawings or in the specifications is intended to establish a level of quality and performance. Substitution requests may be submitted at the time of shop drawing submittal. A review of substituted equipment or material before the Bid Date will not be considered unless otherwise specified.
- B. Substitution shall be submitted as specified in Division 01.

1.06 CODE REQUIREMENTS, FEES & PERMITS

- A. Perform work per applicable provisions of state and local Plumbing Code, gas ordinances, and adoptions thereof. Provide materials and labor necessary to comply with rules, regulations, and ordinances.
- B. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Architect in writing of such differences.
- C. Obtain all required permits in connection with this work under the contract and pay all fees in

connection therewith. Arrange with serving utility companies for the connection to all utilities and pay all charges for the same including inspection fees and meters if required.

1.07 OPERATIONS AND MAINTENANCE MANUAL FOR MECHANICAL SYSTEMS

- A. Bind two (2) Operations & Maintenance Manuals for Mechanical Systems in 3-ring, hardback binders. The spine of each binder shall have the following lettering done in silk-screen:

OPERATION AND MAINTENANCE MANUAL
WELDING SHOP
POCAHONTAS, ARKANSAS

1. Provide a master index at beginning of Manual showing items included. Include the name and phone number of the nearest supplier and Manufacturer's representative. Use plastic tab indexes for sections of Manual.
 2. Step by step procedure to follow in putting each piece of mechanical equipment into operation.
 3. Provide schematic control diagrams for each separate fan system, refrigeration system, heating system, control panel, etc. Each diagram shall show locations of start-stop switches, insertion thermostats, room thermostats, thermometers, fire-stats, pressure gauges, automatic valves, and refrigeration accessories. Mark correct operating settings for each control instrument on these diagrams.
 4. Provide diagram for electrical control system showing the wiring of related electrical control items such as fire-stats, fuses, interlocks, electrical switches, and relays.
 5. Provide drawings of each temperature control panel identifying components on the panels and their function.
- B. Maintenance instructions shall include:
1. Manufacturer's maintenance instructions for each piece of mechanical equipment installed in the project. Instructions shall include the name of the vendor, installation instructions, parts numbers and lists, operations instructions of equipment and maintenance, and lubrication instructions.
 2. Summary list of mechanical equipment requiring lubrication showing the name of equipment, location, and type and frequency of lubrication.
 3. List of mechanical equipment used indicating name, model, serial number, and nameplate data of each item together with number and name associated with each system item.
- C. Air Balance and Test Run Reports.
1. Include a copy of air balance reports and certifications.
 2. Include a copy of the operating test data.
- D. Provide a complete set of approved shop drawing submittals as an Appendix item.

1.08 OPERATIONS AND MAINTENANCE INSTRUCTIONS

- A. Instruct Owner/Owner's Representative in operation and maintenance of mechanical systems utilizing Operations and Maintenance Manual when so doing.
- B. Minimum instruction periods shall be as follows:
1. Mechanical - Eight (8) hours.
 2. Refrigeration - Eight (8) hours.
- C. Instruction periods shall occur after pre-final inspection when systems are properly working and before final payment is made.
- D. None of these instructional periods shall overlap another.

1.09 CONTRACTOR REVISED DRAWINGS

- A. The contractor shall, during the progress of the work, keep an accurate record of all changes and corrections from the layouts shown on the drawings. Record of changes may be kept by accurately making all changes on a set of prints during the progress of the job.
- B. The exact location of all underground utility service entrances and their connections to utility mains, wellheads, loop piping, and all valves, etc., which will be concealed in the finished work shall be accurately indicated on the drawings by measured distances.
- C. Upon completion of the work and before final payment, the contractor shall furnish to the Architect, one set of "contractor revised" prints, legibly and accurately marked to indicate all changes, additions, deletions, etc., from the contract drawings.
- D. The contractor shall include all addendum items and field change order information on the revised drawings. Revise all schedules shown on the drawings to reflect the actual model numbers, capacities, and electrical characteristics of substituted equipment.

1.10 VISIT SITE

- A. This contractor shall visit the site of the building before submitting a proposal on this work, and shall thoroughly familiarize himself with the existing conditions and operations. Failure on his part to do this will not be cause for extras after the contract is signed because of unforeseen conditions. Any existing electrical wiring and conduit, gas, water drainage piping encountered within the building area shall be relocated or removed where required by this contractor at no extra cost to the Owner.

1.11 COORDINATION OF WORK

- A. It is understood that while Drawings are to be followed as closely as circumstances permit, this Division will be held responsible for the installation of systems according to the true intent and meaning of the Contract Documents. Anything not clear or in conflict will be explained by making an application to Architect. Should conditions arise where certain changes would be advisable, secure Architect's approval of these changes before proceeding with the work.
- B. Coordinate work of various trades in installing inter-related work. Before installation of mechanical items, make proper provisions to avoid interferences in a manner approved by Architect. Changes required in work specified in Division 23 caused by neglect to do so shall be made at no cost to the Owner.
- C. Provide inserts and supports required by Division 23 unless otherwise noted. Furnish sleeves, inserts, supports, and equipment that are an integral part of other divisions of the Work to Sections involved insufficient time to be built into construction as the Work proceeds. Locate these items and see that they are properly installed. Expense resulting from an improper location of installation of items above shall be borne by Division 23.
- D. Be responsible for required digging, cutting, and patching incident to work of this Division and make required repairs afterward to satisfaction of Architect. Cut carefully to minimize the necessity for repairs to existing work. Do not cut beams, columns, or trusses.
 - 1. Each Section of this Division shall bear the expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, and tardiness or because of damage done by it.
 - 2. Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is the responsibility of Section installing work.
- E. Adjust locations of pipes, etc. to accommodate work from interferences anticipated and encountered. Determine the exact route and location of each pipe and duct before fabrication.
 - 1. Make offsets, transitions, and changes in direction of pipes, as required to maintain proper headroom and pitch of sloping lines whether or not indicated on Drawings.
- F. Slots and openings through floors, walls, ceilings, and roofs shall be provided by other Divisions in

their respective materials. This Division shall see that they are properly located and do any cutting and patching caused by its neglect to do so.

1.12 EXCAVATION AND TRENCHING FOR PIPING

- A. Excavate to the depths indicated on the Drawings or as otherwise specified. Excavated materials not required or suitable for backfill or fill shall be removed from the site. Do such grading as is necessary to prevent surface water from flowing into trenches or other excavations. Water accumulated therein shall be removed by pumping or by other approved methods. Do sheeting and shoring as may be necessary for the protection of the work and safety of personnel. Excavation shall be by open-cut except for that short sections of the trench may be tunneled if the pipe can be safely and properly installed and backfill can be properly tamped in such tunnel sections.
- B. Trench Excavation: The bottom of the trench for tile or concrete pipe shall be rounded so that at least the bottom quadrant of the pipe rests firmly on undisturbed soil for as nearly the full length of the barrel as proper jointing operations will permit. Grade bottom of trenches to provide uniform bearing and support for each section of pipe, on undisturbed soil. Where rock is encountered, excavate to a minimum over-depth of 4" below trench depths indicated on the drawings or specified. Over-depths in rock excavation and unauthorized over-depths shall be backfilled. Whenever wet or otherwise unstable soil incapable of properly supporting the pipe is encountered, such soil shall be removed and the trench backfilled to proper grade as hereinafter specified.
- C. Depth of Cover: Trenches shall be of a depth that will provide a minimum depth of cover of three feet for water, sanitary and storm sewer, and two feet for gas piping from existing grade or from indicated finish grade, whichever is lower, unless otherwise specifically shown.

1.13 BACKFILLING OF TRENCHES

- A. Trenches shall not be backfilled until required pressure and other tests have been performed, an inspection of utility, and Code officials have been accomplished, and until the utility systems as installed conform to requirements of drawings and specifications.
- B. Backfill trenches with excavated materials consisting of earth, sandy clay, sand, gravel, soft shale or other approved materials, free from clods of earth or stones over 2-1/2 inch maximum dimension, deposited in 6-inch layers and compacted to 95% of the maximum laboratory density determined per ASTM D-698, Moisture-Density Relation of Soils. Tests for maximum density will be made with expense borne by the contractor. If fills fail to meet the specified densities, the contractor shall remove and re-compact the fill until specified densities are achieved.
- C. Tests for Displacement of Sewers: After the trench has been backfilled to 2 feet or more above the pipe, if the pipe shows poor alignment, displaced pipe, or any other defects, such defects shall be remedied by the contractor at his expense.

1.14 GENERAL PIPING INSTALLATION

- A. Furnish and install a complete system of piping. The piping drawings are diagrammatic and indicate the general location and connections. If the size of any piping is not evident, obtain instructions from the Architect before proceeding with the work. The piping may have to be offset, lowered or raised as required or as directed at the site. This does not relieve the contractor from responsibility for the proper erection of systems of piping in every respect suitable for the work intended. Piping systems that are not to be installed completely shall be so noted.
- B. Erection: Piping shall be cut accurately for fabrication to measurements established at the construction site. Pipe shall be worked into place without springing and/or forcing. Remove all burrs and cutting slag by reaming or other cleaning methods. Changes in direction shall be made with fittings, except that bending of pipe will be permitted, providing a hydraulic pipe bender is used. Bent pipe showing kinks, wrinkles, or other malformation will not be acceptable. Piping shall be

arranged so as not to interfere with the removal of other equipment or devices, nor to block access manholes or other access openings. Piping shall be installed to ensure noiseless circulation.

- C. A minimum slope of piping shall be per the following unless otherwise specifically shown on the drawings or specified:

Type of Piping		Length for	Direction
<u>Fluid Conveyed</u>	<u>System Component</u>	<u>1" Fall</u>	<u>of Fall</u>
Condensate	Return main	20 feet	Condensate flow
Freon	Main	20 feet	Direction of flow

- D. Protection: Open ends of pipes and equipment shall be properly capped or plugged to keep dirt and other foreign materials out of the system. Plugs or rags, wood, cotton, concrete, waste, or similar materials must not be used in plugging.
- E. Installation of Underground Pipe: The bottom of the trench shall be shaped to give substantially uniform circumferential support to the lower third of each pipe. Pipe shall be laid true to line and grade in such manner as to form a close concentric joint with adjoining pipe and to prevent sudden offsets to flow line. As work progresses, the interior of the pipe shall be cleared of dirt and superfluous materials. Where cleaning after laying is difficult because of small pipe size, a suitable swag or drain shall be kept in the pipe and pulled forward past each joint immediately after jointing has been completed. Trenches shall be kept free from water until pipe jointing has set and pipe shall not be laid when the condition of trench or weather is unsuitable for such work.
- F. Cleaning and Flushing: The contractor shall take every precaution to remove dirt, grease, and all other foreign matter from each length of piping before making connections in the field. After each section of piping is installed, it shall be flushed with clean water except where specified otherwise.
- G. Pipe Sizes: If the size of any piping is not evident in the drawings, the contractor shall request instructions from the Architect as to the proper sizing. Any changes resulting from the contractor's failure to request clarification shall be at his expense.

1.15 THERMAL AND MOISTURE PROTECTION

- A. Install flashing, counterflashing, and caulk or seal all penetrations in exterior walls or floors as required to prevent exterior moisture from entering the building.

1.16 EQUIPMENT AND MATERIALS

- A. Product Approvals:
1. If approval is received to use other than specified items, responsibility for specified capacities, and ensuring that items to be furnished will fit space available lies with this Division.
 2. In the event other than specified equipment is used and will not fit job site conditions, this Division assumes responsibility for replacement with items named in the specification.
- B. Use domestic-made pipe, pipe fittings, and motors on the project.
- C. Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connection and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents.
- D. Follow the Manufacturer's directions in delivery, storage, protection, and installation of equipment and materials.
1. Promptly notify Architect in writing of conflicts between requirements of Contract Documents and manufacturer's directions and obtain Architect's written instructions before proceeding with work. Bear expenses arising from correcting deficiencies of work that do not comply with Manufacturer's directions or such written instructions from Architect.
- E. Deliver equipment and material to the site and tightly cover to protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to

moisture damage (such as controls), in a dry, heated space.

1.17 REVIEW OF MATERIALS AND EQUIPMENT

- A. Furnish complete catalog data for manufactured items of equipment to be used in Work to Architect for review within 30 days after award of Contract.
- B. Submit all mechanical items in (1) complete submittal. Provide an index of all items submitted, including specification section number, in the order, they appear in the specifications.
 - 1. State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions, and other pertinent information. Pertinent information shall include as a minimum those items as scheduled on the drawings. Arrange submittal information to reflect these categories scheduled on the drawings.
 - 2. Provide an index of tab numbers at the front of each binder. List the specification number and category included under each tab as described in the specifications and as scheduled on the drawings.
 - 3. Provide a cover sheet for each tab section. List each piece of equipment by name, model number, and supplier.
 - 4. Underline applicable data and indicate the model being supplied on each submittal sheet.
- C. If data is not submitted as specified or submittal is not complete, it will be returned without review.
- D. Catalog data or shop drawings for equipment which are noted as being reviewed by the Architect, shall not supersede Contract Documents.
- E. Review comments of Architect shall not relieve this Division from responsibility for deviations from Contract Documents unless Architect's attention has been called to such deviations in writing at the time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.
- F. Check work described in catalog data with Contract Documents for deviations and errors.

1.18 GUARANTEE

- A. The work herein specified shall be free from defects in workmanship and material under normal use and service. If within twelve (12) months from date of substantial completion and Owner acceptance of the work herein described, any of the equipment or materials, or in the installation thereof, is found to be defective in workmanship or material, it shall be replaced or repaired free of charge.
- B. The Contractor shall, after completion of the original test of the installation, and acceptance of the Architect, provide any service incidental to the proper performance of the mechanical systems under guarantees outlined above for one (1) year.

1.19 FINALLY

- A. It is the intention that this specification shall provide a complete installation except as hereinbefore specifically excepted. All accessory construction and apparatus necessary or advantageous in the operation and testing of the work shall be included.
- B. The omission of specific reference to any part of the work necessary for such complete installation shall not be interpreted as relieving this Contractor from furnishing and installing such parts.

PART 2 PRODUCTS

Not Applicable.

PART 3 EXECUTION

Not Applicable.

END OF SECTION

**DOCUMENT 23 0501
MECHANICAL DEMOLITION**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.

1.02 DESCRIPTION OF WORK

- A. The extent of general demolition work is shown on drawings. Coordinate the required mechanical and plumbing work with the general demolition.
- B. Demolition includes removal of systems and removal and disposal of demolished materials, as shown on drawings and herein specified.
- C. The Owner shall have the option of retaining any items removed. The Contractor shall deliver these items to the Owner's designated storage area. Any items not retained by the Owner shall be disposed of off-site by the Contractor.

1.03 JOB CONDITIONS

- A. Condition of Structures: The Owner assumes no responsibility for actual condition of structures to be demolished.
 - 1. Conditions of the structure existing at time of inspection for bidding purposes will be maintained by Owner in so far as practicable. However, variations within structure may occur by Owner's removal and salvage operations prior to start of demolition work. The drawings are schematic and provided as an aid in bidding. The contractor shall visit the site and determine the actual conditions prior to bidding.
- B. Partial Removal: Items of salvable value to Contractor may be removed from structure as work progresses. Salvaged items must be transported from site as they are removed.
 - 1. Storage or sale or removed items on site will not be permitted.
- C. Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks, occupied areas, and other adjacent occupied or used facilities.
- D. Protections; Ensure safe passage of persons around or through area of demolition.

Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.
 - 1. Install temporary mechanical services, plumbing, temperature control, etc., as required by the Owner or authorities having jurisdiction.
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to Owner.
- F. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Allow no interruption in service unless coordinated with Owner at least 24 hours in advance.
 - 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary

- services during interruptions to existing utilities, as acceptable to governing authorities.
- 2. Contractor will disconnect and seal utilities serving each structure to be demolished, or interior area to be demolished, prior to start of demolition work.
- G. If Contractor is required to disconnect utility services or other services to an occupied area, the Contractor shall provide temporary or alternative service to that area, as required by Owner.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 DEMOLITION

- A. Remove all equipment, piping, etc., as indicated on the drawings.
- B. All items shown to remain active shall be furnished with necessary devices or accessories.

3.02 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Remove from site debris, rubbish, and other materials resulting from demolition operations. Pay all fees related to removal and dumping.
 - 1. Burning of removed materials from demolished structures will not be permitted on site.
- B. Removal:
 - 1. Transport materials removed from demolished structures and dispose of offsite.

END OF SECTION

**SECTION 23 0529
HANGERS & SUPPORTS FOR HVAC PIPING AND EQUIPMENT**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe and equipment hangers and supports.
- B. Equipment bases and supports.
- C. Sleeves and seals.
- D. Flashing and sealing equipment and pipe stacks.

1.02 RELATED SECTIONS

- A. Section 23 0719 - Piping Insulation.

1.03 REFERENCES

- A. ASME B31.2 - Fuel Gas Piping
- B. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

1.04 SUBMITTALS

- A. Submit under provisions of Section 23 0500.
- B. Manufacturer's Installation Instructions: Indicate special procedures and assembly of components.

PART 2 - PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

- A. Plumbing Piping - Water:
 - 1. Conform to ASME B31.9 and ASTM F708.
 - 2. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
 - 4. Hangers for Hot Pipe Sizes 2 to 4 Inches: Carbon steel, adjustable, clevis.
 - 5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
 - 6. Wall Support for Pipe: Welded steel bracket and wrought steel clamp.
 - 7. Vertical Support: Steel riser clamp.
 - 8. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 9. Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 10. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- B. Hydronic Piping:
 - 1. Conform to ASME B31.9 and ASTM F708.
 - 2. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
 - 4. Hangers for Hot Pipe Sizes 2 to 4 Inches: Carbon steel, adjustable, clevis.
 - 5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
 - 6. Vertical Support: Steel riser clamp.
 - 7. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.02 ACCESSORIES

- A. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

2.03 FLASHING

- A. Metal Flashing: 28-gauge 304 stainless steel.
- B. Copper Flashing: 16 oz. / sq. ft.
- C. Lead Flashing:
 - 1. Waterproofing: 6 lb. / sq. ft.
- D. Caps: Steel, 22-gauge minimum; 16-gauge at fire-resistant elements.

2.04 SLEEVES

- A. Sleeves for Pipes thru Non-fire Rated Floors: 18-gauge galvanized steel.
- B. Sleeves for Pipes thru Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe.
- C. Sleeves for Ductwork and Pipes thru Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire-rated sleeves including seals, UL listed.
- D. Sleeves for Round Ductwork: Galvanized steel.
- E. Sleeves for Rectangular Ductwork: Galvanized steel.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install per manufacturer's instructions.
- B. Coordinate wall and floor penetration sealant requirements with a general contractor.

3.02 PIPE HANGERS AND SUPPORTS

- A. Support horizontal piping as scheduled.
- B. Install hangers to provide minimum 1/2 inch space between the finished covering and adjacent work.
- C. Place hangers within 12 inches of each horizontal elbow.
- D. Use hangers with 1-1/2 inch minimum vertical adjustment.
- E. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.
- F. Support vertical piping on every floor. Support vertical cast iron pipe at each floor at the hub.
- G. Where several pipes can be installed in parallel and at the same elevation, provide multiple or trapeze hangers.
- H. Support riser piping independently of connected horizontal piping.
- I. Provide copper plated hangers and supports for copper piping.
- J. Design hangers for pipe movement without disengagement of supported pipe.
- K. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl space, Pipe-shafts and suspended ceiling spaces are not considered exposed.

3.03 EQUIPMENT BASES AND SUPPORTS

- A. Provide housekeeping pads of concrete, where indicated on Drawings, minimum 4 inches thick, and extending 6 inches beyond supported equipment. Refer to Section 03 3000. Coordinate the exact size required for pads.
- B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

- C. Construct supports of steel members. Brace and fasten with flanges bolted to structure.
- D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.04 FLASHING

- A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.
- B. Flash vent and soil pipes projecting 4 inches minimum above-finished roof surface with lead worked one-inch minimum into a hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipes through outside walls, turn flanges back into wall and calk, metal counter-flash, and seal.
- C. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36-inch sheet size. Fasten flashing to drain clamp device.
- D. The sealed floor drains watertight to adjacent materials.
- E. Adjust storm collars tight to pipe with bolts; calk around the top edge. Use storm collars above roof jacks. Screw vertical flange section to the face of the curb.

3.05 SLEEVES

- A. Set sleeves in position in formwork. Provide reinforcing around sleeves.
- B. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- C. Extend sleeves through floors one inch above the finished floor level. Caulk sleeves.
- D. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with fire stopping insulation and calk. Provide close-fitting metal collar or escutcheon covers at both sides of penetration. Secure collar or escutcheon to prevent blow-out. Fire stopping materials shall meet the requirements of ASTM E119.
- E. Install chrome-plated steel escutcheons at finished surfaces.

3.06 SCHEDULES

HANGER ROD

<u>PIPE SIZE</u>	<u>MAX. HANGER SPACING</u>	<u>DIAMETER</u>
Inches	Feet	Inches
1/2 to 1-1/4	6.5	3/8
1-1/2 to 2	10	3/8
2-1/2 to 3	10	1/2
4 to 6	10	5/8

END OF SECTION

SECTION 23 0548
VIBRATION AND SEISMIC CONTROLS FOR HVAC SYSTEMS

PART 1 GENERAL

1.01 SCOPE

- A. The requirements for seismic protection measures to be applied to HVAC equipment specified herein are in addition to any other items called for in other sections of these specifications. The seismic protection shall conform to Design Category D of the 2012 Arkansas Fire Prevention Code. The HVAC equipment shall include the following items to the extent required on plans or in other sections of the following specifications:
1. Air Handling Units
 2. Ductwork over 6sq. ft. in Area
 3. Components Weighing More than 75 Pounds

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Basic Requirements - Section.

1.03 APPLICABLE PUBLICATIONS

- A. American Society of Civil Engineers: ASCE 7
- B. Federal Specifications:
1. RR-W-410D

1.04 REGULATORY REQUIREMENTS

- A. Conform to 2012 Fire Prevention Code.

PART 2 PRODUCTS

- 2.01** Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.
- 2.02** Sway brace of structural steel conforming with ASTM A36.
- 2.03** Mechanical couplings of the sleeve type to provide a tight flexible joint under all reasonable conditions.
- 2.04** Square-head bolts and heavy hexagon nuts, ANSI B18.2.1 and B12.2.2 and ASTM A307 or 306.
- 2.05** Guy wires where required shall conform to Fed Spec. RR-W-441 as follows:
- | | |
|-------------------------|-----------------|
| 5/32" diameter | Type V, Class 1 |
| 3/16" to 5/16" diameter | Type V, Class 2 |
| 1/4" to 5/8" diameter | Type I, Class 2 |

PART 3 EXECUTION

- 3.01** All rigidly mounted equipment will have a minimum of four (4) anchor bolts securely fastened through bases or backs. Anchor bolts must conform to ASTM A307. Anchor bolts shall have an embedded straight length equal to at least twelve times the nominal diameter of the bolt and shall conform to the applicable tables for various equipment weights.

Maximum Equipment

Weight (Pounds)

500	1/2
1,000	1/2
5,000	1/2
10,000	1/2
20,000	1/2
30,000	5/8
50,000	3/4
100,000	1

Based on four (4) bolts per item; a minimum embedment of 12 bolt diameters, a minimum bolt spacing of 16 bolt diameters and a minimum edge distance of 12 bolt diameters. Use equivalent total cross-sectional area when more than four bolts per item are provided. Anchor bolts that exceed normal depth of equipment foundation piers or pads shall either extend into concrete floor or the foundation shall be increased in depth to accommodate bolt lengths. When height-to-width ratio of the equipment exceeds 8.9, overturning must be investigated. Expansion anchors shall not be used to resist seismic or vibratory loads unless test data are provided to verify the adequacy of the specific anchor and application. In no case shall the expansion anchor size be less than that required for bolts in the preceding table. Selection of anchor bolts for vibration isolation devices and/or snubbers to equipment base and foundations shall follow the same procedure, except that an equipment weight equal to five times the actual equipment weight shall be used

- 3.02** Equipment Sway Bracing shall be provided for all items supported from overhead floor or roof structures. Braces shall consist of angles, rods, bars, or pipes run at a 45° angle from the equipment frame to the building structure secured at both ends with no less than 1/2 inch bolts. Braces shall conform to all applicable codes and standards for Seismic Classification. Bracing shall be provided in two planes of directions, 90° apart, for each item of equipment. Details of all equipment bracing shall be submitted for approval. In lieu of bracing with vertical supports, these items may be supported with hangers inclined at 45°, provided that supporting members are properly sized to supporting operating weight of equipment when inclined at a 45° angle.
- 3.03** Sway bracing shall be provided for all 2-1/2 inch or larger pipes, not individually supported with hangers 12 inches or less in length.
- 3.04** Sway bracing shall be provided for ductwork over six (6) square feet in cross sectional area supported more than 12" from structure.
- 3.05** All terminals that weight more than 75 pounds shall have a safety chain or safety cable in addition to its other support.
- 3.06** Vibration isolators shall have a bumper restraint in each horizontal direction, and vertical restraints shall be provided where required to resist overturning.
- 3.07** Oversized plate washers extending to the equipment wall shall be used at bolted connections through the base sheet metal if the base is not reinforced with stiffeners or not capable of transferring the required loads.

END OF SECTION

SECTION 26 0500

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Basic Electrical Requirements specifically applicable to Divisions 26 Section, in addition to Division 1 - General Requirements.

1.02 REFERENCES

- A. The following specifications and standards of issues listed below but referred to thereafter by basic designation only, form a part of these specifications:
 - 1. American Society for Testing Materials.
 - 2. American Standards Association.
 - 3. Americans with Disabilities Act (ADA).
 - 4. Arkansas Energy Code (ASHRAE 90.1).
 - 5. Arkansas Fire Prevention Code.
 - 6. Illuminating Engineering Society.
 - 7. Institute of Electrical and Electronic Engineers.
 - 8. International Building Code.
 - 9. Local, City and State Codes and Ordinances.
 - 10. National Electrical Code, 2020 Edition.
 - 11. National Electrical Manufacturers Association.
 - 12. National Electrical Safety Code, 2002 Edition.
 - 13. National Fire Protection Association's Recommended Practices.
 - 14. Occupational Safety and Health Act.
 - 15. Power Cable Engineers Association.
 - 16. Service requirements of serving utility company.
 - 17. Underwriter's Laboratories, Inc.

1.03 SUBMITTALS

- A. Submit six (6) sets of shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal. The basic information for each item of equipment to be included is as follows:
 - 1. Index.
 - 2. Installation and Operating Instructions
 - a. Individual tabbed sections.
 - b. Manufacturer descriptive literature.
 - c. Applicable control diagrams.
 - d. Composite wiring diagrams.
 - 3. Each submittal sheet shall be clearly marked with equipment Catalog Number and accessory items being submitted.

1.04 REGULATORY REQUIREMENTS

- A. Work shall conform to all applicable codes, specifications, local ordinances, industry standards and utility company regulations.
- B. Notwithstanding any reference in the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalog number, such references shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The Contractor, in such cases, may at his option propose any article, approved equal to or better than that specified, as approved in writing by the Engineer.
- C. All materials and workmanship shall comply with all applicable codes, specifications, local ordinances, industry standards and utility company regulations.
- D. In case of difference between building codes, specifications, state laws, local ordinances,

industry standards, and utility company regulations and the contract documents, the most stringent shall govern. The Contractor shall promptly notify the Engineer in writing of any such difference.

- E. Non-Compliance: Should the contractor perform any work that does not comply with the requirements of the applicable building codes, state laws, local ordinances, industry standards and utility company regulations, he shall bear all costs arising in correcting the deficiencies.
- F. All required fees, permits and inspections shall be obtained and paid for by the contractor under the section of the specifications for which they are required.

1.05 ELECTRICAL LICENSE REQUIREMENT

- A. No person shall perform electrical work on the Contract without possessing an Arkansas State Master or Journeyman License from the Arkansas State Electrical Examiner's Board. All electrical work and apprentice electricians shall be supervised by a Master or Journeyman Electrician on a one-to-one ratio.
- B. All electricians shall have a copy of their license with them and shall be required to show it to an appropriate inspector upon request.
- C. The Arkansas Department of Labor requires that the worker, who installs raceway for low voltage cables of temperature controls, fire alarm, telecommunications, intrusion detection, access control, public address, television distribution, etc., be paid the electrician's minimum wage rate.

1.06 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions. The Engineer/Owner reserves the right to relocate any device a maximum distance of 6'-0" at the time of installation without an extra cost being incurred.
- B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Engineer before proceeding.

1.07 CONTRACTOR REVISED DRAWINGS

- A. The Contractor shall, during the progress of the work, keep an accurate record of all changes and corrections from the layouts shown on the drawings. Record of changes may be kept by accurately making all changes on a set of prints during the progress of the job.
- B. Upon completion of the work and prior to final payment, the Contractor shall furnish to the Engineer, one set of "contractor revised" reproductions, legibly and accurately marked to indicate all changes, additions, deletions, etc., from the contract drawings.

1.08 GUARANTEE

- A. The work herein specified shall be free from defects in workmanship and material under normal use and service. If, within twelve (12) months from date of substantial completion and Owner acceptance of the work herein described, any of the equipment or materials, or the installation thereof, is found to be defective in workmanship or material, it shall be replaced or repaired free of charge.
- B. The Contractor shall, after completion of the original test of the installation, and acceptance by the Engineer, provide any service incidental to the proper performance of the electrical systems under guarantees outlined above for a period of one (1) year.

1.09 OPERATING AND MAINTENANCE MANUALS

- A. After approval of materials and equipment for use in this project, 3 copies of an Operation and Maintenance Manual shall be submitted for approval.
- B. The basic information for each item of equipment to be included is as follows:

1. Index
 2. Maintenance and operating instructions
 - a. Manufacturer's descriptive literature and maintenance manuals
 - b. An Approved Set of Shop drawings
 - c. Applicable control diagrams
 - d. Composite wiring diagrams as applicable showing all motor controllers, relays, etc., with interlocking provisions as built in the job, along with a written description of the control sequence if applicable.
 - e. Spare parts list (when parts are provided)
 - f. Listing of part suppliers and their addresses
 - g. Single line diagram of the "as built" building electrical distribution system.
- C. Upon final approval, submit one (1) bound copy of the approved Operation and Maintenance Manual to the Engineer and hold two (2) copies for instruction of Owner as hereinafter specified.

1.10 CONFLICTS BETWEEN DRAWINGS AND SPECIFICATIONS

- A. If a conflict between the drawings and the specifications occurs, the most stringent requirement shall apply.

PART 2 - PRODUCTS

2.01 UL LISTING

- A. Where the Underwriter's Laboratories have an applicable standard, the product shall be listed with UL and shall be so marked.

2.02 SUBSTITUTIONS

- A. Each Section of the Project Manual, when applicable has a paragraph entitled "Manufacturers". If "Engineer Approved Equal" is not in the list of manufacturers, no substitutions will be accepted. Submit one of the manufacturers listed.
- B. The Engineer does not give any prior approvals on submittals. Do not call the Engineer for prior approval.

PART 3 - EXECUTION

3.01 600 VOLT INSULATION TEST

- A. Prior to energizing the electrical system, the contractor shall provide insulation resistance tests for all distribution and utilization equipment. The Contractor shall provide a suitable and stable source of test power. The insulation test shall be a "megger" test at 500 volts D.C. for one-half minute. A test report shall be submitted to the Engineer. The minimum insulation resistance for No. 12 AWG conductors shall be 1,000,000 ohms and for larger conductors shall be 250,000 ohms. Conductors testing below the minimum insulation resistance shall be replaced and tested again.

3.02 CONTINUITY TEST

- A. The Contractor shall perform a continuity test on the entire electrical system prior to energizing the system to insure proper cable connections.

3.03 CONNECTION TORQUE TESTS

- A. All No. 1/0 AWG and larger conductors with bolted connections shall be torque tested using a torque wrench. Torque shall be to National Electrical Testing Association's (NETA) Standards.

3.04 REMOVAL OF RUBBISH

- A. Contractor shall remove his rubbish from building site at intervals and shall maintain the spaces allotted him in an orderly manner. On completing his work, and prior to submission of final estimate, he shall remove all tools, appliances, material, and rubbish from the grounds.

3.05 GROUND RESISTANCE MEASUREMENTS

- A. Ground resistance measurements of each ground rod shall be taken and certified by the Contractor to the Engineer. No part of the electrical distribution system shall be energized prior to the resistance testing of that system's ground rods and grounding system and submission of test results to the Engineer. Test reports shall indicate the location of the ground rod and grounding system and the resistance and the soil conditions at the time the test was performed. When the building water service is used as a ground of part of the grounding system, ground-resistance measurements shall also be made of this connection. Ground resistance measurements shall be made in normally dry weather, not less than 48 hours after rainfall, and with the ground under test isolated from other grounds. The resistance to ground shall be measured using the fall-of-potential method described in IEEE No. 142. Submit test reports with Operation and Maintenance Manuals.

3.06 MECHANICAL OPERATION TESTS

- A. All electrical equipment, such as switches, circuit breakers, etc., shall be tested by operating the device to verify that the mechanical portions of the device are functioning.

3.07 ROTATIONAL TESTS

- A. The Contractor shall assist Division 23 in performing rotational tests on all motors. If rotational tests determine that conductors must be transposed to change direction of rotation, the conductors shall be changed at the make-up box on the motor; or if the change is made elsewhere, then the conductor's color coding shall be changed.

3.08 INSTRUCTING OWNER'S REPRESENTATIVE

- A. The Contractor shall instruct representatives of the Owner in the proper operation and maintenance of all elements of the Electrical system.
- B. Contractor shall spend not less than one (1) day in such formal instruction to fully prepare the Owner's representative to operate and maintain the Electrical systems.

3.09 UL LISTINGS

- A. The Contractor shall bear all responsibility for any work, which he performs, that voids any UL listings of any equipment.

3.10 OWNER OCCUPIED BUILDINGS

- A. Holes cut in Owner occupied buildings shall be done with drills with vacuum attachments that vacuum cuttings as the drill cuts.
- B. All drilling, hammering, or other loud construction activities shall be done after Owner's normal working hours.
- C. Conduit cutting will be done outside.
- D. Contractor shall clean work area at the end of each day.

3.11 OBJECTIONABLE NOISE AND/OR HARMONICS

- A. If after installation of the electrical system, it is found that objectionable noise or harmonics exists on the electrical system, the manufacturer of the equipment which is producing the objectionable noise or harmonics shall install the proper electrical equipment to prevent the noise and/or harmonics from emitting onto the building's electrical system and shall be contained within the offending equipment.

3.12 VOLTAGE MEASUREMENTS

- A. Contractor shall measure and record voltage at service equipment with as much load on the system as possible. Contractor shall measure and record phase-to-phase, phase-to-neutral, and phase-to-equipment ground voltages for each phase. Where harmonic cancellation

transformers are installed, contractor shall also measure and record phase-to-phase, phase-to-neutral and phase-to-equipment ground voltages for each phase on the secondary side of the transformers. Contractor shall submit records of these voltages with the Operation and Maintenance Manuals.

3.13 REMOVAL OF PAINT AND OTHER FINISHES

- A. The contractor shall remove all paint and other non-factory finishes applied inadvertently by other subcontractors to all electrical equipment.

3.14 TEMPORARY CONSTRUCTION POWER AND LIGHTING

- A. The contractor shall provide all necessary temporary construction power and lighting to accomplish the work.
- B. After the construction is completed, the contractor shall remove all temporary construction power and lighting.

3.15 PROJECT PHASING

- A. The contractor shall become familiar with the project phasing prior to his bidding the project and shall include in his bid, the amount of money required by him to provide the necessary labor, materials, adjustments, programming, reprogramming, and accessories to provide the project in the phases shown within the general conditions of the contract documents.

END OF SECTION

SECTION 26 0502
EQUIPMENT WIRING SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Electrical connections to elevator, plumbing, appliances, and mechanical equipment specified under other sections or Owner furnished equipment.

1.02 RELATED SECTIONS

- A. Section 26 0533 – Raceway and Boxes for Electrical Systems.
- B. Section 26 0519 – Low-Voltage Electrical Power Connectors and Cable.
- C. Section 26 0529 – Hangers and Supports for Electrical Systems.

1.03 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. NEMA WD 1 - General Purpose Wiring Devices.
- C. NEMA WD 6 - Wiring Device Configurations.
- D. NFPA 72 - National Fire Alarm Code.
- E. UL 498 - Attachment Plugs and Receptacles.
- F. UL 1010 - Receptacle Plug Combinations for Use in Hazardous (Classified) Locations.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide wiring device manufacturer's catalog information showing dimensions, configurations, and construction.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.05 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.
- C. Conform to requirements of the Arkansas State Fire Protection Code.

1.06 COORDINATION

- A. Obtain and review shop drawings, product data, and manufacturer's instructions for equipment furnished under other sections. Verify voltage, ampere, and phase ratings before beginning any of the work. Notify Engineer immediately of any discrepancies found. Any work installed that has to be replaced because of the contractor's failure to verify these ratings will not be reimbursed. Verify that equipment furnished under other sections has disconnects and starters, if so, specified in other sections.
- B. Determine connection locations and requirements.
- C. Sequence rough-in of electrical connections to coordinate with installation schedule for equipment.
- D. Sequence electrical connections to coordinate with start-up schedule for equipment.

PART 2 - PRODUCTS

2.01 CORDS AND CAPS

- A. Manufacturers:
 - 1. Hubbell.
 - 2. Pass & Seymour.
 - 3. Arrow-Hart.
- B. Attachment Plug Construction: Conform to NEMA WD 1.
- C. Configuration: NEMA WD-6; match receptacle configuration at outlet provided for equipment.
- D. Cord Construction: ANSI/NFPA 70, Type SO multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
- E. Size: Suitable for connected load of equipment, length of cord, and rating at branch circuit overcurrent protection.

2.02 BOILER SAFETY SHUTDOWN EQUIPMENT FOR BOILERS

- A. Normally closed pushbutton(s) shall be equal to Square D #SK9RD5H13 with additional KA1 contacts for additional boilers.
- B. Power Relay shall be equal to Square D Class 8501 Type CO-7 in a NEMA 1 enclosure.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using liquidtight flexible conduit with watertight connectors.
- C. Make wiring connections using wire and cable with insulation suitable for temperatures encountered in heat producing equipment.
- D. Provide receptacle outlet where connection with attachment plug is indicated. Provide cord and cap where field-supplied attachment plug is indicated.
- E. Provide suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- F. Install disconnect switches, controllers, control stations, and control devices as indicated and as required by applicable codes.
- G. Provide interconnecting conduit and wiring between devices and equipment where indicated.
- H. All flexible conduit to pumps, chillers, air handling units, outdoor equipment, and water heaters shall be liquidtight.
- I. Ground all metal equipment. Ensure that bonding breaks through paint to bare metallic surface of all painted metallic equipment.
- J. The contractor shall check overload settings, wire sizes, fuse/circuit breaker sizes & disconnect sizes of equipment provided by others for compliance with the National Electrical Code and shall:
 - 1. Adjust settings where possible.
 - 2. Advise the Engineer of non-compliance where remedy will require more than just adjustments.

END OF SECTION

SECTION 26 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Building wire and cable.
- B. Wiring connectors and connections.

1.02 RELATED SECTIONS

- A. Section 26 0529 – Hangers and Supports for Electrical Systems.
- B. Section 26 0533 – Raceway and Boxes for Electrical Systems.
- C. Section 26 0553 – Identification for Electrical Systems.

1.03 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. NETA – National Electrical Testing Association.
- C. UL 83 - Thermoplastic Insulated Wires and Cables.
- D. UL 486 A - Wire Connectors and Soldering Lugs for Use with Copper Conductors.
- E. UL 486 C - Splicing Wire Connectors.
- F. UL 1581 - Reference Standard for Electrical Wires, Cables and Flexible Cords.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide for each wire and cable type.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.07 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Conductors shall be copper.
- C. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.
- D. Where wire and cable routing are not shown, and destination only is indicated, determine exact routing and lengths required.

1.08 COORDINATION

- A. Determine required separation between cable and other work.

- B. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.01 MANUFACTURERS - BUILDING WIRE AND CABLE

- A. Triangle.
- B. American.
- C. Engineer Approved.

2.02 BUILDING WIRE AND CABLE

- A. Description: Single conductor insulated wire.
- B. Conductor: Copper.
- C. Insulation Voltage Rating: 600 volts.
- D. Insulation: ANSI/NFPA 70, Type THW (feeder circuits) and THHN/THWN (branch circuits).

2.03 WIRING CONNECTORS/LUGS

- A. All cable and wire terminals, lugs, taps, and splices shall be made secure with compression type connectors, approved for the service. Connections shall be installed with approved tools and dies to assure a permanent secure joint. Compression joints shall be cleaned and made smooth with insulating compound. Connectors in dry locations shall be wrapped with varnish cambric and insulated with approved electrical grade plastic tape. Where conductors are to be connected to metallic surfaces, the coated surfaces of the metal shall be polished before installing the connector. Lacquer coating of conduits shall be removed where ground clamps are to be installed. Provide all necessary hangers, racks, cleats, and supports required to make a neat installation. Wire connectors shall conform to UL 486.
- B. Connectors in wet or damp locations shall be covered with heat shrinkable products equal to Scotch #ITCSN Series.
- C. Contractor shall provide and install all connectors, taps, lugs, and splices as required to connect all wires and cables provided under the contract. Contractor shall torque all bolted connections to manufacturer's specifications. If manufacturer's specifications do not apply, use NETA specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation verify that interior of building has been protected from weather.
- B. Prior to installation verify that mechanical work likely to damage wire and cable has been completed.

3.02 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.03 WIRING METHODS

- A. Interior Locations: Use only building wire, Type THW or use THHN/THWN insulation, in raceway unless otherwise indicated on the Drawings.
- B. Wet or Damp Interior Locations: Use only building wire, Type THW or THHN/THWN in raceway or liquidtight flexible conduit.
- C. Exterior Locations: Use only building wire, Type THW or THHN/THWN insulation in raceway.
- D. Underground Installations: Use only building wire, Type THW or USE insulation in raceway.
- E. Use wiring methods indicated on Drawings.

- F. On the load side of GFIC circuit breaker, use only Type XHHW conductors.

3.04 INSTALLATION

- A. Install products in accordance with manufacturers instructions.
- B. Use solid conductors for feeders and branch circuits No 10 AWG and smaller, except branch circuits to motors shall be stranded copper for flexibility. Stranded conductors may be used if tapped to solid conductors before terminating to wiring devices.
- C. Use stranded conductors for control circuits 24 volts and below. Minimum size shall be No. 16 AWG.
- D. Use conductors not smaller than No. 12 AWG for power and lighting circuits and 120-volt control circuits.
- E. Use No. 10 AWG conductors for 20-ampere, 120-volt branch circuits longer than 100 feet or where the distance to the first outlet exceeds 50 feet.
- F. Use No. 10 AWG conductors for 20-ampere, 277-volt branch circuits longer than 200 feet.
- G. Pull all conductors into raceway at same time.
- H. Use suitable wire pulling lubricant for building wire No. 4 AWG and larger.
- I. Protect exposed cable from damage.
- J. Support cables above accessible ceiling, using spring metal clips to support cables from structure. Do not rest cable on ceiling panels.
- K. Use suitable cable fittings and connectors.
- L. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- M. Clean conductor surfaces before installing lugs and connectors.
- N. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise. Split bolt connectors are not allowed.
- O. Use sleeve compression connectors for copper conductor splices and taps, No. 6 AWG and larger. Insulated uninsulated conductors and connector with heat shrink insulation rated 600 volts.
- P. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, No. 8 AWG and smaller.
- Q. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, No. 10 AWG and smaller.
- R. Route circuits at own discretion; however, circuit numbers shall be according to Drawings.
- S. Do not share neutral or ground on computer circuits. Each circuit shall be run in a separate raceway.
- T. On three-phase, four-wire systems do not use a common neutral for more than 3 circuits.
- U. On single-phase, three-wire systems do not use a common neutral for more than 2 circuits.
- V. Where a common neutral is run for 2 or 3 homerun circuits, connect phase conductors to breakers in panel, which are attached to separate phase legs in order that the neutral conductors will carry only the unbalanced current. Neutral conductors shall be of same size as phase conductors unless specifically noted otherwise.
- W. Run conductors of same circuit in same conduit.
- X. Run conductors of different voltage system in separate conduits.

Y. Color-code conductors as follows:

480Y277 Volts

Phase A	Brown
Phase B	Orange
Phase C	Yellow
Ground	Green
Neutral	Gray

208Y120 Volts

Phase A	Black	<u>Switch-legs</u> Violet
Phase B	Red	Pink
Phase C	Blue	
Ground	Green	
Neutral	White	
Isolated Ground	Green with Yellow Stripe	

- Z. Contractor shall not install more than three (3) current-carrying conductors in one conduit without derating the conductors per NEC Table 310-15(b)(2)(a).
- AA. Where cables not in conduit pass through floors, cables shall be enclosed in conduit extending at least 6 inches above the floor.
- BB. Cables shall be protected from physical damage where necessary by conduit.
- CC. All cable splices shall be made in boxes.
- DD. The radius of bends in cables shall not be less than five times the diameter of the cable.
- EE. Cables shall be secured by staples, straps, j-hooks, or similar fittings every 4-1/2 feet and within 12 inches of every cabinet, box and fitting.
- FF. Do not pull cable sheaths back more than necessary to separate conductors.
- GG. Do not score conductors when peeling back conductor insulation. Scored conductors will be replaced.
- HH. Do not cut off strands from stranded conductors at terminations. Conductors with strands missing shall be replaced.
- II. Kinked, torn, or twisted cable sheaths are unacceptable and shall be replaced.
- JJ. Install wire and cables to avoid chemicals, cold temperature bending, and different lengths of conductors of same circuit.
- KK. Make sure conduits are properly terminated, reamed and brushed before installation of wire and cables.
- LL. Cable sheaths shall be held in place by strain relief fittings.
- MM. Verify proper conductor location at each termination before energizing.
- NN. All parallel conductors shall be of the same length, type, size and shall have the same connector pressures.
- OO. Do not splice service entrance or feeder conductors.
- PP. Maintain 18-inch clearance from all wires and cables to hot water pipes, steam pipes, and flues.
- QQ. Route all cables parallel and perpendicular to walls. This includes cables installed above ceilings, in attics, and in crawl spaces.

3.05 INTERFACE WITH OTHER PRODUCTS

- A. Identify wire and cable under provisions of 26 0553 – Identification for Electrical Systems.

- B. Identify each conductor with its circuit number or other designation indicated on Drawings in each junction box, switch, switchboard, control panel, and in each panelboard.

3.06 FIELD QUALITY CONTROL

- A. Perform field inspection and testing.
- B. Inspect wire and cable for physical damage and proper connection.
- C. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values, if applicable. If not applicable, use NETA's recommended values.
- D. Verify continuity of each branch circuit conductor.
- E. Check tightness of all connections.

3.07 USE OF THE FOLLOWING IS PROHIBITED

- A. Aluminum conductors.
- B. Wire nuts in damp or wet locations.
- C. Copper-clad aluminum conductors.

END OF SECTION

SECTION 26 0526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Grounding electrodes and conductors.
- B. Equipment grounding conductors.
- C. Bonding.
- D. Chemicals.
- E. Conduit.

1.02 RELATED SECTIONS

- A. Section 26 0533 – Raceway and Boxes for Electrical Systems.
- B. Section 26 0519 – Low Voltage Electrical Power Conductors and Cables.

1.03 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. UL 467 - Grounding and Bonding Equipment.

1.04 GROUNDING ELECTRODE SYSTEM

- A. Metal underground water pipe, if any.
- B. Metal frame of the building, if any.
- C. Electrode.
- D. Rod electrode.
- E. GEM encased in direct contact with earth.

1.05 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: No greater than 5 ohms.

1.06 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide data for grounding electrodes and connections.
- C. Test Reports: Indicate overall resistance to ground and resistance of each electrode.
- D. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of exothermic connectors.

1.07 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Division 1.
- B. Accurately record actual locations of grounding electrodes.

1.08 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 3 years documented experience.

1.09 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.

- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS

2.01 ROD ELECTRODE

- A. Material: Copper clad steel.
- B. Diameter: 3/4 inch.
- C. Length: 10 feet.

2.02 WIRE

- A. Material: Stranded or solid copper.
- B. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.
- C. Wire shall conform to Section 26 0519.

2.03 EXOTHERMIC CONNECTIONS

- A. Cadweld.
- B. Approved Equal.

2.04 CHEMICALS

- A. Ground enhancement materials (50 lbs. minimum per rod).
- B. Cadweld GEM system, or approved equal.

2.05 CONDUIT

- A. Conduit shall conform to Section 26 0533.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that final backfill and compaction has been completed around area where chemical ground is to be installed.

3.02 INSTALLATION

- A. Install Products in accordance with manufacturer's instructions.
- B. Auger a 3-inch diameter hole to a depth of 9-1/2 feet.
- C. Install rod electrodes at locations indicated. Install additional rod electrodes as required to achieve specified resistance to ground. Drive rod 1 foot into ground. Make Cadweld connection. Pour chemicals around rod. Tamp around rod. Pour water in augered hole. Remove excess water from hole. Fill remainder of augered hole with soil. Tamp soil.
- D. Provide grounding well pipe with cover at each rod location. Install well pipe top flush with finished grade.
- E. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus or bushing.
- F. Size and type of green equipment ground conductors and method of securing them to obtain electrical continuity and effective grounding as per National Electrical Code, Article 250. Conduit shall not be used for grounding.
- G. Neutrals shall be grounded in accordance with the National Electrical Code.
- H. All metal raceway system, including cabinets, conduit and boxes, shall be grounded in accordance with the National Electrical Code.
- I. An equipment ground conductor shall be installed in all conduits.

- J. Install a grounding electrode and grounding electrode conductor at the service equipment, meter, current transformer cabinet, and at each dry type transformer.
- K. The grounding electrode shall be connected to the metal structure of all buildings with metal structures and to a 1-1/2 inch or larger cold-water pipe, if metallic. The ground connection to the metal structure shall be exothermic.
- L. Install isolated ground conductors all the way back to the service equipment ground for 240- and 208-volt services.
- M. All unburied grounding conductors shall be installed in conduit.
- N. Provide grounding of pad-mounted transformer as required by the Utility.
- O. Connect equipment ground conductor of branch circuits serving gas appliances to metallic gas lines. Do not use metallic gas lines as a grounding electrode of the electrical system.
- P. Ground all metal non-current carrying equipment. Ensure that bonding breaks through paint to bare metallic surface of all painted metallic equipment.

3.03 FIELD QUALITY CONTROL

- A. Inspect equipment grounding conductors and connections for tightness and proper installation.
- B. Use suitable test instrument to measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall-of-potential method.

END OF SECTION

SECTION 26 0529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Conduit, cable and equipment supports.
- B. Anchors and fasteners.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. NECA - National Electrical Contractors Association.
- C. UL 514B - Fittings for Conduit and Outlet Boxes.

1.03 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide manufacturer's catalog data for fastening systems.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.04 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 PRODUCT REQUIREMENTS

- A. Materials and Finishes: Provide adequate corrosion resistance.
- B. Provide materials, sizes, and types of anchors, fasteners, and supports to carry the loads of equipment and conduit. Consider weight of wire in conduit when selecting products.
- C. Perforated strap iron will not be acceptable as hanger or fastening material.
- D. Plastic tie wraps will not be acceptable as support materials, except:
 - 1. Inside enclosures to neatly train cables and wires.
- E. Channels shall be galvanized and not painted.
- F. All hardware shall be galvanized.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- C. Do not fasten supports to pipes, ducts, mechanical equipment, and other conduit.
- D. Obtain permission from the Engineer before using powder-actuated anchors.
- E. Obtain permission from the Engineer before drilling or cutting structural members.
- F. Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon

head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

- G. Install surface-mounted cabinets with minimum of four anchors. Provide blocks between studs to support anchors.
- H. In wet and damp locations use steel channel supports to stand cabinets one inch off wall.
- I. All conduits, both horizontal and vertical, shall be accurately supported. Each hanger shall be properly sized to fit supported conduit.
- J. Where lines are supported under concrete construction, hanger rods shall be secured with concrete inserts.
- K. All hangers shall be so located as to properly grade and support horizontal conduits without appreciable sagging of these lines.
- L. Where multiple conduits are run horizontally at the same elevation and grade, they may be supported on trapezes of channels suspended on rods. Trapeze numbers, including suspension rods, shall be properly sized for number, size, and loaded weight of conduits to be supported.
- M. Conduit supports shall be installed within 3 feet of each coupling, connector, and box.
- N. Electrical contractor shall install his own supports for his equipment.
- O. All 2 inch and larger conduits shall have a swivel hanger support equal to B-Line #B446 or #B446C.

END OF SECTION

SECTION 26 0533

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Rigid steel conduit.
- B. Flexible metal conduit.
- C. Liquidtight flexible metal conduit.
- D. Electrical metallic tubing.
- E. Surface mounted raceway.
- F. PVC conduit.
- G. Fittings and conduit bodies.
- H. Wall and ceiling outlet boxes.
- I. Floor boxes.
- J. Pull and junction boxes.

1.02 RELATED SECTIONS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
- C. Section 26 0553 - Identification for Electrical Systems.
- D. Section 26 0548 - Vibration and Seismic Controls for Electrical Systems.
- E. Section 26 2726 - Wiring Devices.
- F. Section 26 0502 - Equipment Wiring Systems.

1.03 REFERENCES

- A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
- B. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- C. ANSI/NFPA 70 - National Electrical Code.
- D. NECA "Standard of Installation".
- E. NEMA TC 3 - PVC Fittings to Use with Rigid PVC Conduit and Tubing.
- F. UL 1 - Flexible Metal Conduit.
- G. UL 5 - Surface Metal Raceways and Fittings
- H. UL 6 - Rigid Metal Conduit.
- I. UL 360 - Liquid-tight Flexible Steel Conduit.
- J. UL 652 - Schedule 40 and 80 Rigid PVC Conduit.
- K. ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- L. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- M. UL 38 - Boxes for Use with Fire-Protection Signaling Systems, Manually Actuated Signaling.
- N. UL 50 - Cabinets and Boxes.

- O. UL 514A - Metallic Outlet Boxes.
- P. UL 514B - Fittings for Conduit and Outlet Boxes.
- Q. UL 996 - Electrical Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations.
- R. UL 1241 - Junctions Boxes for Swimming Pool Lighting Fixtures.
- S. UL 1773 - Termination Boxes.
- T. UL 65 - Wired Cabinets.

1.04 DESIGN REQUIREMENTS

- A. Conduit Size: ANSI/NFPA 70.

1.05 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 05 00.
- B. Product Data: Provide for metallic conduit, flexible metal conduit, liquidtight flexible metal conduit, metallic tubing, non-metallic conduit, fittings, and conduit bodies.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.

1.06 PROJECT RECORD DOCUMENTS

- A. Accurately record actual routing of conduits larger than 2 inches.
- B. Submit under provisions of Division 1.
- C. Accurately record actual locations and mounting heights of outlet, pull, and junction boxes.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle Products to site.
- B. Inspect all conduit for damage.
- C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- D. Protect PVC conduit from sunlight.

1.09 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Verify routing and termination locations of conduit and openings prior to rough-in.
- C. Route conduit as shown on Drawings in approximate locations unless specifically dimensioned. Route as required to complete wiring system.
- D. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose. The exact location of all electrical boxes shall be as approved by Engineer who reserves the right to change any outlet for a distance of 6 feet in any direction from position shown on plans, before work is roughed-in, without extra charge.

PART 2 - PRODUCTS

2.01 CONDUIT REQUIREMENTS

- A. Minimum Size: 3/4 inch unless otherwise specified.
- B. Underground Installations:
 - 1. Conduit installed below grade shall be Schedule 80 PVC. All elbows and riser up thru floor slabs shall be galvanized rigid steel conduit (RSC).
 - 2. All conduit not installed under the floor slab shall be 24 inches below grade unless otherwise noted.
- C. Outdoor Locations, Above Grade, and On Roofs: Use galvanized rigid steel conduit. On roofs install 4-inch by 4-inch square treated wooden blocks on roof to support rigid steel conduit within 3'-0" of each coupling and box and to support liquidtight flexible conduit every 3'-0".
- D. Dry Locations:
 - 1. Concealed: Use electric metallic tubing.
 - 2. Exposed:
 - a. Use galvanized rigid steel conduit in unfinished areas only (Electric Room, Mechanical Room) unless noted otherwise.
 - b. Use surface metal raceway where specifically indicated in finished areas of existing buildings where it is impossible to fish flexible metallic conduit down inside of existing walls.
- E. Mechanical and Electrical Rooms:
 - 1. Use 6'-0" maximum length liquidtight flexible conduit for final connections to mechanical equipment and dry type transformers. Support all flexible conduit every 3'-0".
 - 2. Use galvanized rigid steel conduit where exposed.
- F. In Slabs Above Grade: Use galvanized steel only. Conduits shall not cross each other. Refer to Drawings for specific notes for conduit in slab locations.
- G. Electrical metallic tubing (EMT) is to be used for all HVAC equipment control wiring. The conduit system for HVAC temperature controls is to be furnished and installed by Division 15 in accordance with the requirements specified herein. Line voltage control work not specifically shown on the electrical drawings shall be furnished and installed by Division 15 with all line voltage work and all conduit work performed by licensed electricians.
- H. Use surface metal raceway only in existing facilities where conduit cannot be fished down walls or across finished ceilings. Surface metal raceway shall not be used in new buildings, unless noted on the Drawings.

2.02 RIGID STEEL CONDUIT

- A. Manufacturers:
 - 1. Allied.
 - 2. Triangle.
 - 3. Engineer Approved.
- B. Rigid Steel Conduit: ANSI 80.1
- C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; material to match conduit.

2.03 FLEXIBLE METAL CONDUIT

- A. Manufacturers:
 - 1. Allied.
 - 2. Triangle.
 - 3. Engineer Approved.
- B. Description: Interlocked steel construction.
- C. Fittings: ANSI/NEMA FB 1.
- D. Maximum Length: 6'-0".

2.04 LIQUIDTIGHT METAL CONDUIT

- A. Manufacturers:
 - 1. Allied.
 - 2. Triangle.
 - 3. Engineer Approved.
- B. Description: Interlocked steel construction with PVC jacket.
- C. Fittings: ANSI/NEMA FB 1.
- D. Maximum Length: 6'-0".

2.05 ELECTRICAL METALLIC TUBING (EMT)

- A. Manufacturers:
 - 1. Allied.
 - 2. Triangle.
 - 3. Engineer Approved.
- B. Description: ANSI C80.3; galvanized tubing.
- C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; die-cast compression type.

2.06 SURFACE METAL RACEWAY

- A. Manufacturers:
 - 1. Wiremold.
 - 2. Engineer Approved.
- B. Description: Surface metal raceway with hidden supports.
- C. Fittings, Boxes, and Conduit Bodies: As manufactured by surface metal raceway manufacturer.

2.07 NONMETALLIC CONDUIT

- A. Manufacturers:
 - 1. Carlon.
 - 2. Engineer Approved.
- B. Description: NEMA TC 3; Schedule 80 PVC.
- C. Fittings and Conduit Bodies: NEMA TC 3.

2.08 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported, include 1/2-inch male fixture studs where required.
 - 2. Concrete Ceiling Boxes: Concrete type.
 - 3. Receptacle, single switch, and 2 gang switch boxes for wood studs shall be Racor #194 or #235 with plaster ring of proper depth.
 - 4. Receptacle, single switch, and 2 gang switch boxes for metal studs shall be Racor #196 or #235 with plaster ring of proper depth.
 - 5. Gang switches of 3 or more devices for wood or metal studs and exposed work shall be Racor #950 Series, appropriate gang box and raised cover.
 - 6. Lighting fixture outlet boxes for wood or metal studs, masonry walls, and furred ceilings shall be Racor #166, #167, or Racor #194 or #235 with plaster ring.
 - 7. Junction boxes for wood or metal studs, masonry walls, furred ceilings and interior exposed work shall be Racor #231, #232, #233, or #235.
 - 8. Receptacle boxes for masonry walls shall be Racor #695 or #191 with #785 device cover.
 - 9. Switches in 6 inch and wider masonry walls shall be 3-1/2-inch-deep masonry boxes of gang required. Masonry boxes in 4-inch walls shall be 2-1/2 inches deep.
 - 10. Television outlet boxes shall be Racor #246, 4-1/16-inch box with #836 device cover ring. Telephone outlet boxes shall be Racor #256.
 - 11. Outlet boxes for interior exposed work in unfinished areas shall be Racor #191, #192, #231,

- or #232 boxes with 1/2 inch raised, 4-inch square cover of appropriate configuration.
12. Boxes, for interior exposed work on existing walls and ceilings in finished areas in existing buildings, where it is impossible to fish conduit down walls or above ceilings, shall be boxes as manufactured by the surface metal raceway manufacturer for the intended purpose.

- B. Cast Boxes: NEMA FB 1, Type FD, aluminum. Provide gasketed cover by box manufacturer.
- C. Boxes shall be oversized when required by Table 370-16(a) of the National Electrical Code.
- D. Specialty A/V floor boxes shall be as scheduled on the drawing, "FSR" or equal

2.09 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
- B. Surface-Mounted Cast Metal Box: NEMA 250, Type as required; flat-flanged, surface-mounted junction box.
1. Material: Galvanized steel.
- C. Cover: Furnish with ground flange, neoprene gasket, and stainless-steel cover screws.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install conduit in accordance with NECA "Standard of Installation".
- B. Install surface metal raceway in accordance with manufacturer's directions.
- C. Arrange supports to prevent misalignment during wiring installation.
- D. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers. Supports shall be installed within 3 feet of every outlet box, junction box, panel, or other conduit terminations. Fastening of unbroken lengths shall be permitted to be increased to a distance of 5 feet where structural members do not readily permit fastening within 3 feet. Do not space supports further than 10 feet apart.
- E. Group related conduits; support using conduit rack. Construct rack using steel channel.
- F. Fasten conduit supports to building structure and surfaces under provisions of Section 26 05 29.
- G. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- H. Do not attach conduit to ceiling support wires.
- I. Arrange conduit to maintain headroom and present neat appearance.
- J. Route all conduit parallel and perpendicular to walls. This includes conduit installed above ceilings, in attics, on roofs, and in crawl spaces.
- K. Install insulated bushings or approved equivalent on each end of all conduit.
- L. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F.
- M. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- N. Bring conduit to shoulder of fittings; fasten securely.
- O. Install no more than equivalent of four 90-degree bends between boxes. Use factory elbows for all 90-degree bends in conduits 1" and larger.
- P. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- Q. Provide suitable fittings to accommodate expansion and deflection where conduit crosses expansion joints.

- R. Use suitable caps to protect installed conduit against entrance of dirt and moisture during construction.
- S. Ground and bond conduit under provisions of Section 26 05 26.
- T. Identify conduit under provisions of Section 26 05 53.
- U. Provide suitable pullboxes in all conduit runs as required by the National Electrical Code and as required to facilitate wire installation.
- V. Holes for passage of conduits through all one-hour and two-hour drywall partitions shall be neatly cut to the required size. If holes are cut larger than necessary, they shall be covered with two (2) additional pieces of 5/8 inch type X gypsum wallboard, each 8 inches by 16 inches with a half circular cutout of the proper size, one (1) layer on one-hour partitions, and two (2) layers on two-hour partitions.
- W. Holes for passage of conduits through one-hour, two-hour, and four-hour masonry walls shall be fireproofed. Fireproofing materials shall be as follows:
 - 1. Cellular Glass Insulation: Pittsburgh Corning Corp. Foamglas "Regular" or UL rated or UNI-JAC UL rated pipe insulation, or approved equal.
 - 2. Fire Retardant Putty: IPC Flamesafe Type FAS500 or FST600 Series, or improved equal, for one-hour and two-hour walls.
 - 3. IPC/KB5 Mortar Seal, or approved equal (full depth of wall) for four-hour walls.
- X. Holes for passage of conduits through masonry floors shall be fireproofed. Fireproofing material shall be Firestop Compound - IPC Flamesafe Type 500/FST 600, or approved equal, filled to full depth of slab. Minimum annular space around conduit shall be 3/16 inch.
- Y. Refer to Architectural drawings for locations of fire-rated walls, ceilings, and floors.
- Z. Support 2-1/2 inch and larger conduit in accordance with Section 26 0548.
- AA. All flexible conduit in Mechanical Rooms and outside shall be liquidtight flexible conduit.
- BB. All conduits that enter a building's basement wall below grade shall have a fitting equal to OZ Type CSBI installed inside the conduit and shall be watertight sealed between outer conduit wall and basement opening.
- CC. Conduits, which enter refrigerated areas, such as walk-in coolers and wall-in freezers, shall have a seal-off installed on the non-refrigerated side of the conduit where the conduit exits or enters the refrigerated area.
- DD. Make sure conduits are properly terminated, reamed, and brushed before installation of wire or cable.
- EE. Install bushings on all conduits.
- FF. Structural Engineer shall approve placement of conduits in all concrete slabs, beams, and columns. See Structural Drawings for structural engineer's name and address.
- GG. Conduits which pass from an air-conditioned space to a non-air-conditioned space shall have sealoffs installed on non-air-conditioned side near wall.
- HH. Ground metallic conduits.
- II. Install gasketed conduit hubs on all conduits exiting the top or sides of NEMA 3R enclosures.
- JJ. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements.
- KK. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
- LL. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

- MM. Install boxes to preserve fire resistance rating of partitions and other elements.
- NN. Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.
- OO. Use flush mounting outlet boxes in finished areas, unless noted otherwise on the Drawings.
- PP. Do not install flush mounting boxes back-to-back in walls; provide minimum 6-inch separation. Provide minimum 24-inch separation in acoustic rated walls. See Architectural floor plans for acoustic rated wall locations.
- QQ. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- RR. Use stamped steel bridges to fasten flush mounting outlet box between studs.
- SS. Install flush mounting box without damaging wall insulation or reducing the effectiveness.
- TT. Use adjustable steel channel fasteners for hung ceiling outlet box.
- UU. Do not fasten boxes to ceiling support wires.
- VV. Support boxes independently of conduit.
- WW. Use gang box where more than one device is mounted together. Do not use sectional box.
- XX. In other than masonry, use 4-inch square by 1-1/2-inch minimum box with plaster ring for single devices.
- YY. Use cast outlet box in exterior locations exposed to the weather and wet locations.
- ZZ. Use cast floor boxes for installations in slab on grade. See plans for specialty A/V floor boxes equal to FSR. Coordinate cover trim with floor covering thickness and type.
- AAA. Set floor boxes level.
- BBB. Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension.
 - 1. Interior Dry Locations: Use hinged enclosure.
 - 2. Other Locations: Use surface-mounted cast metal box.
- CCC. Locate boxes so outlets are not obstructed by pipes, ducts, or other items.
- DDD. Boxes for light switches shall generally be located within 6 inches of door jamb.
- EEE. Pull boxes shall be provided at points shown on plans or required to overcome mechanical difficulties due to arrangement of runs or the fixed characteristics of the building construction. No runs of over 100 feet shall be made without use of pullbox.
- FFF. All boxes shall have covers. All boxes installed above a ceiling and installed in unfinished spaces (Mechanical and Electrical Rooms, etc.) shall have the covers clearly and legibly marked with the circuits contained within them.
- GGG. All flush-mounted boxes shall come within 1/4 inch of finished non-combustible surfaces and shall be flush with finished combustible surfaces. Install box extensions, if after rough-in and wall construction, the boxes do not come out far enough.
- HHH. Fireproof all poke-through devices in accordance with manufacturer's directions.
- III. Ground all boxes. Ensure that bonding breaks through paint to bare metallic surface.
- JJJ. Grind ears off of 2-gang boxes with isolated ground receptacles in each box. Grinding shall be done in a machine shop.

3.02 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance of partitions and other elements.

- B. Pullboxes shall be provided at points shown on the plans or required to overcome mechanical difficulties due to arrangement of runs or the fixed characteristics of the building construction.
- C. All threaded conduit shall be secured to boxes, cabinets, panels, switches, etc. by means of a threaded bushing on the inside and locknuttred on the box exterior and interior.
- D. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- E. Coordinate mounting heights and locations of outlets mounted above counters, branches, and backsplashes with Architect prior to rough-in.
- F. Position outlet boxes to locate luminaires as shown on reflected ceiling plan.

3.03 THE FOLLOWING ARE PROHIBITED

- A. EMT crimp-on, tap-on, indenter type fittings.
- B. EMT set- screw fittings. Set-screw fittings on ends of flexible conduit are allowed.
- C. PVC inside buildings, or above grade.
- D. All thread nipples in other than dry locations.
- E. Wooden plugs inserted in concrete or masonry units as bases for fastening conduits, tubing, boxes, cabinets, or other equipment.
- F. Installation of conduit or tubing which has been crushed or deformed.
- G. Where conductors #8AWG or larger are inside, the following fittings shall not be used:
 - 1. 90° threaded hubs.
 - 2. Pulling elbows.
 - 3. Bushed elbows.
 - 4. Short box connectors.
 - 5. 90° connectors.
 - 6. Entrance elbows.
 - 7. Types LB, LL, LR, T, L, TA, TB, X, LBD, or LBDN conduit bodies.
 - 8. Short elbows.
- H. Type ENT tubing.
- I. Armored cable.
- J. Metal-clad cable.
- K. EMT on roof, exposed, outside, in concrete, or underground.
- L. Flexible or liquidtight flexible conduits concealed in walls or floors.
- M. PVC elbows.
- N. Storage of PVC in sunlight.
- O. The use of heat to bend PVC conduit.
- P. Surface non-metal raceway.
- Q. Surface metal raceway in new buildings.
- R. Surface metal raceway in damp or wet locations.
- S. Flexible or liquidtight flexible conduits in lengths exceeding 6'-0".
- T. The use of external coverclips on surface metal raceway.
- U. All steel EMT fittings.
- V. Flexible conduit connectors on which the flexible conduit is threaded.

- W. Plastic boxes.
- X. Fiberglass boxes.

END OF SECTION

SECTION 26 0548

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SCOPE

- A. The requirements for seismic protection measures to be applied to electrical equipment specified herein are in addition to any other items called for in other sections of these specifications. The seismic protection shall conform to Category "C" of the 2021 Arkansas Fire Prevention Code. The electrical equipment shall include the following items to the extent required on plans or in other sections of the following specifications:

Conduit, 2-1/2 inches or larger
Panelboards
Cable Trays
Switches
Light Fixtures
Switchboards
Communication Racks

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Basic Electrical Requirements - Section 26 0500.

1.03 APPLICABLE PUBLICATIONS

- A. American National Standards Institute, Inc. (ANSI):
1. B18.2.1-1981
 2. B18.2.2-1972
- B. American Society for Testing and Materials (ASTM):
1. A36-84a
 2. A307-84
 3. A325-85
 4. A501-84
 5. A576-81
- C. Federal Specifications:
1. RR-W-410D
- D. NEMA
1. 250 Enclosures for Electrical Equipment
 2. IC56

1.04 REGULATORY REQUIREMENTS

- A. Conform to NFPA 70 - National Electrical Code and International Building Code.
- B. Conform to 2021 Fire Prevention Code.

PART 2 - PRODUCTS

- 2.01 Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose

specified and shown.

- 2.02** Sway brace of structural steel conforming with ASTM A36.
- 2.03** Mechanical couplings of the sleeve type to provide a tight flexible joint under all reasonable conditions.
- 2.04** Square head bolts and heavy hexagon nuts, ANSI B18.2.1 and B12.2.2 and ASTM A307 or 306.
- 2.05** Guy wires where required shall conform to Fed Spec. RR-W-441 as follows:
- | | |
|-------------------------|-----------------|
| 5/32" diameter | Type V, Class 1 |
| 3/16" to 5/16" diameter | Type V, Class 2 |
| 1/4" to 5/8" diameter | Type I, Class 2 |

PART 3 - EXECUTION

- 3.01** All rigidly mounted equipment will have a minimum of four (4) anchor bolts securely fastened through bases or backs. Anchor bolts must conform to ASTM A307. Anchor bolts shall have an embedded straight length equal to at least twelve times the nominal diameter of the bolt and shall conform to the applicable tables for various equipment weights.

Maximum Equipment Weight (Pounds)	
500	1/2
1,000	1/2
5,000	1/2
10,000	1/2
20,000	1/2
30,000	5/8
50,000	3/4
100,000	1

Based on four (4) bolts per item, a minimum embedment of 12 bolt diameters, a minimum bolt spacing of 16 bolt diameters and a minimum edge distance of 12 bolt diameters. Use equivalent total cross-sectional area when more than four bolts per item are provided. Anchor bolts that exceed normal depth of equipment foundation piers or pads shall either extend into concrete floor or the foundation shall be increased in depth to accommodate bolt lengths. When height-to-width ratio of the equipment exceeds 8.9, overturning must be investigated. Expansion anchors shall not be used to resist seismic or vibratory loads unless test data are provided to verify the adequacy of the specific anchor and application. In no case shall the expansion anchor size be less than that required for bolts in the preceding table. Selection of anchor bolts for vibration isolation devices and/or snubbers to equipment base and foundations shall follow the same procedure, except that an equipment weight equal to five times the actual equipment weight shall be used. Vibration isolation devices shall be selected so that the maximum movement of equipment from the static deflection point shall be 0.5 inches.

- 3.02** Equipment Sway Bracing shall be provided for all items supported from overhead floor or roof structures. Braces shall consist of angles, rods, bars, or pipes run at a 45-degree angle from the equipment frame to the building structure secured at both ends with no less than 1/2-inch bolts. Braces shall conform to all applicable codes and standards for Seismic Classification. Bracing shall be provided in two planes of directions, 90 degrees apart, for each item of equipment. Details of all equipment bracing shall be submitted for approval. In lieu of bracing with vertical supports, these items may be supported with hangers inclined at 45-degrees, provided that supporting members are properly sized to supporting operating weight of equipment when inclined at a 45-degree angle.

- 3.03** All recessed fluorescent light fixtures shall have seismic clips firmly situated over tops of ceiling grid tees or plaster frames.
- 3.04** Sway bracing shall be provided for all 2-1/2 inch or larger conduits, not individually supported with hangers 12 inches or less in length.
- 3.05** All 2-1/2 inch or larger conduits entering or leaving a building or structure shall have a flexible seismic expansion fitting installed within the earth prior to entering the building or after leaving the building. Fitting shall be within 5'-0" of building or structure. Fitting shall be equal to Appleton Type DF.
- 3.06** All light fixtures that weight more than 50 pounds shall have a safety chain or safety cable in addition to its other support.
- 3.07** Sway bracing shall be provided for all cable trays.
- 3.08** Communications racks shall be bolted to floor. Tops of racks shall be bolted to walls.
- 3.09** Cable trays and conduits shall be independently supported and braced independently of the ceiling.
- 3.10** Powder-activated fasteners (shot pins) shall not be used for anchorage.
- 3.11** Vibration isolators shall have a bumper restraint in each horizontal direction, and vertical restraints shall be provided where required to resist overturning.
- 3.12** Internal coils of dry type transformers shall be positively attached to their supporting substructure within the transformer enclosure.
- 3.13** Slide-out components in electrical equipment shall have a latching mechanism to hold contents in place.
- 3.14** Electrical cabinet design shall conform to NEMA 250 and NEMA IC56.
- 3.15** The attachment of additional items weighing more than 100 pounds to electrical equipment is prohibited.
- 3.16** Friction clips shall not be used for anchorage attachments.
- 3.17** Oversized plate washers extending to the equipment wall shall be used at bolted connections through the base sheet metal if the base is not reinforced with stiffeners or not capable of transferring the required loads.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Nameplates and labels.
- B. Wire and cable markers.
- C. Trench tape.

1.02 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.03 RELATED SECTIONS

- A. Section 09 90 00 - Painting: Boxes.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 05 00.
- B. Product Data: Provide catalog data for nameplates, labels, and markers.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under regulatory requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.05 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 NAMEPLATES AND LABELS

- A. Nameplates: Engraved three-layer laminated plastic, white letters on black background.
- B. Locations:
 - 1. Each electrical distribution equipment (switchboards, panelboards, enclosed circuit breakers, motor control centers, transformers) and control equipment enclosure (starters, disconnect switches, etc.).
- C. Letter Size:
 - 1. Use 1/2-inch letters for identifying equipment designation and voltage.
- D. Provide typewritten directory in each panelboard of circuit designations in clear/transparent protective envelope attached to inside of panelboard door.
- E. Provide typewritten zone directory in each conventional fire alarm control panel in clear/transparent, protective envelope attached to inside of central panel door.
- F. Provide nameplate on inside of each panelboard and main indicating color code scheme for the voltage of that panelboard and main, nameplates to be red with white characters.

2.02 WIRE MARKERS

- A. Description: Tape or tubing type wire markers.
- B. Locations: Each conductor at panelboard gutters switchboard gutters, motor control center gutters, pull boxes, outlet and junction boxes, disconnect switches, motor starters, and at each load

connection.

C. Legend:

1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.

2.03 TRENCH TAPE

- A. Tape shall be detectable aluminum foil polyethylene laminate.
- B. Tape shall be the following color and have the following wording:

<u>Application</u>	<u>Color</u>	<u>Caution Wording</u>
Cable TV	Orange	"Caution – Cable TV Line Buried Below"
Electrical	Red	"Caution – Electric Line Buried Below"
Telephone	Orange	"Caution – Telephone Line Buried Below"
Fiber Optic	Orange	"Caution – Buried Fiber Optic Cable"

- C. Tape shall be equal to Panduit Type HTDU with width to match trench width.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and labels.

3.02 APPLICATION

- A. Install nameplate and label parallel to equipment lines.
- B. Secure nameplate to equipment front using No. 4 round heat cadmium plated, steel self-tapping screws or nickel-plated brass plates.
- C. Identify underground conduits using underground warning tape. Install one tape per trench at 6 inches below finished grade.
- D. All fire alarm junction boxes and pullboxes shall be painted red where concealed or exposed in mechanical or electrical rooms.
- E. Both ends of pullwires shall be identified by means of labels or tags, reading "PULLWIRE" and shall be numbered to refer to same pullwire.
- F. Install nameplates at each circuit breaker on all switchboards and large panelboards.
- G. Install wire markers on wires in each junction box, panelboard, switchboard, control panel, etc.
- H. Install typewritten "COMPUTER" with black letters and clear background on each coverplate of receptacles adjacent to information outlets
- I. Install nameplates at each device within motor control centers.
- J. Install directory of addresses and corresponding devices and locations in each addressable fire alarm and security control panels.
- K. All security junction boxes and pullboxes shall be painted yellow where concealed or exposed in mechanical or electrical rooms.
- L. Install labels on all telephone and computer cables.
- M. All telephone junction boxes and pullboxes shall be painted white where concealed or exposed in mechanical or electrical rooms.
- N. Paint all data junction boxes and pullboxes blue where concealed or exposed in mechanical or

electrical rooms.

- O. Paint all public address junction boxes and pullboxes dark gray where concealed or exposed in mechanical or electrical rooms.
- P. Paint all television cable junction boxes or pullboxes black where concealed or exposed in mechanical or electrical rooms.

END OF SECTION

SECTION 26 0573
ARC FLASH HAZARD ANALYSIS/SHORT/CIRCUIT/COORDINATION STUDY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The contractor shall furnish short-circuit and protective device coordination studies as prepared by Square D Engineering Services, Cutler Hammer Engineering Services or Siemens Engineering Services.
- B. The contractor shall furnish an Arc Flash Hazard Analysis Study per the requirements set forth in the current version of NFPA 70E -*Standard for Electrical Safety in the Workplace*. The arc flash hazard analysis shall be performed according to the IEEE Standard 1584 – 2002, the IEEE *Guide for Performing Arc-Flash Calculations*.

1.02 REFERENCES

- A. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - 1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems
 - 2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
 - 3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis
 - 4. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings
 - 5. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.
 - 6. IEEE 1584 -Guide for Performing Arc-Flash Hazard Calculations
- B. American National Standards Institute (ANSI):
 - 1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
 - 2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures
 - 3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis
 - 4. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.
- C. The National Fire Protection Association (NFPA)
 - 1. NFPA 70 -National Electrical Code, latest edition
 - 2. NFPA 70E – Standard for Electrical Safety in the Workplace

1.03 SUBMITTALS

- A. The studies shall be submitted to the design engineer prior to receiving final approval of the distribution equipment shop drawings and/or prior to release of equipment drawings for manufacturing. If formal completion of the study may cause delays in equipment

shipments, approval from the Engineer may be obtained for a preliminary submittal of data to ensure that the selection of device ratings and characteristics will be satisfactory to properly select the distribution equipment. The formal study will be provided to verify preliminary findings.

1.04 SUBMITTALS FOR CONSTRUCTION

- A. The results of the short-circuit, protective device coordination and arc flash hazard analysis studies shall be summarized in a final report. A minimum of five (5) bound copies of the complete final report shall be submitted. For large system studies, submittals requiring more than five (5) copies of the report will be provided without the section containing the computer printout of the short-circuit input and output data. Electronic PDF copies of the report shall be provided upon request.
- B. The report shall include the following sections:
 - 1. Executive Summary including Introduction, Scope of Work and Results/Recommendations.
 - 2. Short-Circuit Methodology Analysis Results and Recommendations
 - 3. Short-Circuit Device Evaluation Table
 - 4. Protective Device Coordination Methodology Analysis Results and Recommendations
 - 5. Protective Device Settings Table
 - 6. Time-Current Coordination Graphs and Recommendations
 - 7. Arc Flash Hazard Methodology Analysis Results and Recommendations including the details of the incident energy and flash protection boundary calculations, along with Arc Flash boundary distances, working distances, Incident Energy levels and Personal Protection Equipment levels.
 - 8. Arc Flash Labeling section showing types of labels to be provided. Section will contain descriptive information as well as typical label images.
 - 9. One-line system diagram that shall be computer generated and will clearly identify individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location, device numbers used in the time-current coordination analysis, and other information pertinent to the computer analysis.

1.05 QUALIFICATIONS

- A. The short-circuit, protective device coordination and arc flash hazard analysis studies shall be conducted under the responsible charge and approval of a Registered Professional Electrical Engineer skilled in performing and interpreting the power system studies.
- B. The Registered Professional Electrical Engineer shall be an employee of the equipment manufacturer or an approved engineering firm.
- C. The Registered Professional Electrical Engineer shall have a minimum of five (5) years of experience in performing power system studies.
- D. The approved engineering firm shall demonstrate experience with Arc Flash Hazard Analysis by submitting names of at least ten actual arc flash hazard analyses it has performed in the past year.

- E. The engineering firm shall have a minimum of ten (10) years experience in performing power system studies.

1.07 COMPUTER ANALYSIS SOFTWARE

- A. The studies shall be performed using SKM Systems Analysis Power*Tools for Windows (PTW) software program or an engineer approved equivalent.

PART 2 PRODUCTS

2.01 STUDIES

- A. The contractor shall furnish an Arc Flash Hazard Analysis Study per NFPA 70E - Standard for Electrical Safety in the Workplace, reference Article 130.3 and Annex D. This study shall also include short-circuit and protective device coordination studies. All studies to be prepared by Square D Engineering Services.

2.02 DATA

- A. Contractor shall furnish all data as required for the power system studies. The Engineer performing the short-circuit, protective device coordination and arc flash hazard analysis studies shall furnish the Contractor with a listing of required data immediately after award of the contract. The Contractor shall expedite collection of the data to assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to the release of the equipment for manufacturing.
- B. Source combination may include present and future motors and generators.
- C. Load data utilized may include existing and proposed loads obtained from Contract Documents provided by Owner, or Contractor.
- D. If applicable, include fault contribution of existing motors in the study. The Contractor shall obtain required existing equipment data, if necessary, to satisfy the study requirements.

2.03 SHORT-CIRCUIT ANALYSIS

- A. Transformer design impedances shall be used when test impedances are not available.
- B. Provide the following:
 - 1. Calculation methods and assumptions
 - 2. Selected base per unit quantities
 - 3. One-line diagram of the system being evaluated that clearly identifies individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location and other information pertinent to the computer analysis
 - 4. The study shall include input circuit data including electric utility system characteristics, source impedance data, conductor lengths, number of conductors per phase, conductor impedance values, insulation types, transformer impedances and X/R ratios, motor contributions, and other circuit information as related to the short-circuit calculations.
 - 5. Tabulations of calculated quantities including short-circuit currents, X/R ratios, equipment short-circuit interrupting or withstand current ratings and notes

6. regarding adequacy or inadequacy of the equipment rating.
- Results, conclusions, and recommendations. A comprehensive discussion section evaluating the adequacy or inadequacy of the equipment must be provided and include recommendations as appropriate for improvements to the system.
- C. For solidly-grounded systems, provide a bolted line-to-ground fault current study for applicable buses as determined by the engineer performing the study.
- D. Protective Device Evaluation:
1. Evaluate equipment and protective devices and compare to short circuit ratings
 2. Adequacy of switchgear, motor control centers, and panelboard bus bars to withstand short-circuit stresses
 3. Square D shall notify Owner in writing, of any circuit protective devices improperly rated for the calculated available fault current.

2.04 PROTECTIVE DEVICE TIME-CURRENT COORDINATION ANALYSIS

- A. Protective device coordination time-current curves (TCC) shall be displayed on log-log scale graphs.
- B. Include on each TCC graph, a complete title with descriptive device names.
- C. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
- D. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
- E. Plot the following characteristics on the TCC graphs, where applicable:
1. Electric utility's overcurrent protective device
 2. Medium voltage equipment overcurrent relays
 3. Medium and low voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands
 4. Low voltage equipment circuit breaker trip devices, including manufacturer's tolerance bands
 5. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves
 6. Medium voltage conductor damage curves
 7. Ground fault protective devices, as applicable
 8. Pertinent motor starting characteristics and motor damage points, where applicable
 9. Pertinent generator short-circuit decrement curve and generator damage point
 10. The largest feeder circuit breaker in each motor control center and applicable panelboard.
- F. Provide adequate time margins between device characteristics such that selective operation is provided, while providing proper protection.
- G. Provide the following:
1. A One-line diagram shall be provided which clearly identifies individual equipment buses, bus numbers, device identification numbers and the maximum available short-circuit current at each bus when known.

2. A sufficient number of log-log plots shall be provided to indicate the degree of system protection and coordination by displaying the time-current characteristics of series connected overcurrent devices and other pertinent system parameters.
3. Computer printouts shall accompany the log-log plots and will contain descriptions for each of the devices shown, settings of the adjustable devices, and device identification numbers to aid in locating the devices on the log-log plots and the system one-line diagram.
4. The study shall include a separate, tabular printout containing the recommended settings of all adjustable overcurrent protective devices, the equipment designation where the device is located, and the device number corresponding to the device on the system one-line diagram
5. A discussion section which evaluates the degree of system protection and service continuity with overcurrent devices, along with recommendations as required for addressing system protection or device coordination deficiencies.

2.05 ARC FLASH HAZARD ANALYSIS

- A. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E-2004, Annex D. The arc flash hazard analysis shall be performed in conjunction with the short-circuit analysis (Section 2.03) and the protective device time-current coordination analysis (Section 2.04)
- B. The flash protection boundary and the incident energy shall be calculated at significant locations in the electrical distribution system (switchboards, switchgear, motor-control centers, panelboards, busway and splitters) where work could be performed on energized parts.
- C. Circuits 240V or less where available bolted short circuit current is less than 10 kA may be omitted from the computer model and will be assumed to have a hazard risk category 0 per NFPA 70E Table 130.7(C)(9)(a), including footnote 3.
- D. Circuits 240V or less fed by transformers 112.5 kVA or less may be omitted from the computer model and will be assumed to have a hazard risk category 0 per IEEE 1584.
- E. Working distances shall be based on IEEE 1584. The calculated arc flash protection boundary shall be determined using those working distances.
- F. When appropriate, the short circuit calculations and the clearing times of the phase overcurrent devices will be retrieved from the short-circuit and coordination study model. Ground overcurrent relays should not be taken into consideration when determining the clearing time when performing incident energy calculations
- G. The short-circuit calculations and the corresponding incident energy calculations for multiple system scenarios must be compared and the greatest incident energy must be uniquely reported for each equipment location in a single table. Calculations must be performed to represent the maximum and minimum contributions of fault current magnitude for normal and emergency operating conditions. The minimum calculation will assume that the utility contribution is at a minimum. Conversely, the maximum calculation will assume a maximum contribution from the utility. Calculations shall take into consideration the parallel operation of synchronous generators with the electric utility, where applicable as well as any stand-by generator applications.

The Arc-Flash Hazard Analysis shall be performed utilizing mutually agreed upon facility

operational conditions, and the final report shall describe, when applicable, how these conditions differ from worst-case bolted fault conditions.

- H. The incident energy calculations must consider the accumulation of energy over time when performing arc flash calculations on buses with multiple sources. Iterative calculations must take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors should be decremented as follows:
 - 1. Fault contribution from induction motors should not be considered beyond 5 cycles.
- I. For each piece of ANSI rated equipment with an enclosed main device, two calculations shall be made. A calculation shall be made for the main cubicle, sides, or rear; and shall be based on a device located upstream of the equipment to clear the arcing fault. A second calculation shall be made for the front cubicles and shall be based on the equipment's main device to clear the arcing fault. For all other non-ANSI rated equipment, only one calculation shall be required and it shall be based on a device located upstream of the equipment to clear the arcing fault.
- J. When performing incident energy calculations on the line side of a main breaker (as required per above), the line side and load side contributions must be included in the fault calculation.
- K. Mis-coordination should be checked amongst all devices within the branch containing the immediate protective device upstream of the calculation location and the calculation should utilize the fastest device to compute the incident energy for the corresponding location.
- L. Arc Flash calculations shall be based on actual overcurrent protective device clearing time. A maximum clearing time of 2 seconds will be used based on IEEE 1584-2002 section B.1.2. Where it is not physically possible to move outside of the flash protection boundary in less than 2 seconds during an arc flash event, a maximum clearing time based on the specific location shall be utilized.
- M. Provide the following:
 - 1. Results of the Arc-Flash Hazard Analysis shall be submitted in tabular form, and shall include device or bus name, bolted fault and arcing fault current levels, flash protection boundary distances, working distances, personal-protective equipment classes and AFIE (Arc Flash Incident Energy) levels.
 - 2. The Arc-Flash Hazard Analysis shall report incident energy values based on recommended device settings for equipment within the scope of the study.
 - 3. The Arc-Flash Hazard Analysis may include recommendations to reduce AFIE levels and enhance worker safety.

PART 3 EXECUTION

3.01 FIELD ADJUSTMENT

- A. Contractor shall adjust relay and protective device settings according to the recommended settings table provided by the coordination study.

Field adjustments to be completed by switchgear manufacturer services under the separate Startup and Acceptance Testing contract portion of project specifications.

- B. Contractor shall make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.

3.02 ARC FLASH LABELS Square D Engineering Services shall provide a 4.0 in. x 4.0 in. Brady thermal transfer type label of high adhesion polyester for each work location analyzed.

- A. The labels shall be designed according to the following standards:
 - 1. UL969 – Standard for Marking and Labeling Systems
 - 2. ANSI Z535.4 – Product Safety Signs and Labels
 - 3. NFPA 70 (National Electric Code) – Article 110.16
- B. The label shall include the following information:
 - 1. System Voltage
 - 2. Flash protection boundary
 - 3. Personal Protective Equipment category
 - 4. Arc Flash Incident energy value (cal/cm²)
 - 5. Limited, restricted, and prohibited approach Boundaries
 - 6. Study report number and issue date
- C. Labels shall be printed by a thermal transfer type printer, with no field markings.
- D. Arc flash labels shall be provided for equipment as identified in the study and the respective equipment access areas per the following:
 - 1. Floor Standing Equipment - Labels shall be provided on the front of each individual section. Equipment requiring rear and/or side access shall have labels provided on each individual section access area. Equipment line-ups containing sections with multiple incident energy and flash protection boundaries shall be labeled as identified in the Arc Flash Analysis table.
 - 2. Wall Mounted Equipment – Labels shall be provided on the front cover or a nearby adjacent surface, depending upon equipment configuration.
 - 3. General Use Safety labels shall be installed on equipment in coordination with the Arc Flash labels. The General Use Safety labels shall warn of general electrical hazards associated with shock, arc flash, and explosions, and instruct workers to turn off power prior to work.

Label Installation

- E. Labels shall be field installed by Square D Services. The technician providing the installation shall have completed an 8-Hour instructor led Electrical Safety Training Course with includes NFPA 70E material including the selection of personal protective equipment.

3.03 ARC FLASH TRAINING

- A. The vendor supplying the Arc Flash Hazard Analysis shall train the owner's qualified electrical personnel of the potential arc flash hazards associated with working on energized equipment (minimum of 4 hours). The training shall be certified for continuing education units (CEUs) by the International Association for Continuing Education Training (IACET) or equivalent. The trainer shall be an authorized OSHA Outreach instructor.
- B. The vendor supplying the Arc Flash Hazard Analysis shall offer instructor led and online NFPA 70E training classes.

END OF SECTION

SECTION 26 2416
PANELBOARDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Branch circuit panelboards.
- B. Distribution panelboards.

1.02 RELATED SECTIONS

- A. Section 09 900 - Painting: Touchup.
- B. Section 26 0529 – Hangers and Supports for Electrical Systems.
- C. Section 26 0553 - Identification for Electrical Systems: Engraved nameplates.
- D. Section 26 0548 – Vibration and Seismic Controls for Electrical Systems.

1.03 REFERENCES

- A. NECA (National Electrical Contractors Association) "Standard of Installation."
- B. NEMA AB 1 - Molded Case Circuit Breakers.
- C. NEMA PB 1 - Panelboards.
- D. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or less.
- E. NFPA 70 - National Electrical Code.
- F. UL 67 - Panelboards.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker arrangement and sizes.
- C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.05 RECORD DOCUMENTS

- A. Record actual locations of Products; indicate actual branch circuit arrangement.

1.06 OPERATION AND MAINTENANCE DATA

- A. Maintenance Data: Include spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.07 QUALITY ASSURANCE

- A. Perform Work in accordance with NECA Standard of Installation.

1.08 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.09 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by UL as suitable for purpose specified and indicated.

1.10 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.11 MAINTENANCE MATERIALS

- A. Provide two of each panelboard key.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Square D.
- B. General Electric.
- C. Siemens/ITE.
- D. Cutler-Hammer.

2.02 PANELBOARDS

- A. Panelboards: NEMA PB1, circuit breaker type.
- B. Panelboard Bus: Tin-plated copper, ratings as indicated. Provide copper ground bus in each panelboard; provide insulated ground bus where scheduled.
- C. Minimum short circuit rating, shall be as indicated on the Drawings. Panelboards shall have a fully rated interrupting rating. Series-rated equipment will not be accepted.
- D. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit breakers UL listed as Type SWD for lighting circuits. Provide UL Class A ground fault interrupter circuit breakers where scheduled. Do not use tandem circuit breakers. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.
- E. Enclosure: NEMA PB 1, Type 1, or 3R as indicated on the Drawings.
- F. Cabinet box: 6 inches deep; width: 20 inches for 240 volt and less panelboards.
- G. Cabinet Front: Surface cabinet front with concealed trim clamps, concealed hinge, and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

2.03 MODIFICATIONS TO EXISTING PANELBOARDS

- A. Provide and install all bus extensions, bus stabs, enclosures, etc. to install circuit breakers in existing panelboards.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install panelboards in accordance with NEMA PB 1.1.
- B. Install panelboards plumb. Provide supports in accordance with Section 26 0529.
- C. Install panelboards with middle at 48 inches, if less than 6'-6" tall. If panelboard is taller than 6'-6 inches, install with top at 7'-6".
- D. Provide filler plates for unused spaces in panelboards.
- E. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.
- F. Provide engraved plastic nameplates under the provisions of Section 26 0553.
- G. Provide a minimum of four (4) spare 20A/1P circuit breakers in each branch circuit panelboard or as indicated on the drawings.
- H. Install all screws and bolts in coverplates.

- I. Install knockout plugs in all unused openings in enclosure.
- J. Install nameplates on all circuit breakers of large panelboards.
- K. Bolt panelboards to mounting surface in accordance with Section 26 0548.
- L. Panelboards installed on basement walls or outside on exterior walls shall be installed on 1-1/2-inch channel.
- M. The first section of multi-section panelboards shall have feed-through lugs. Contractor shall install conductors with ampacities equal to the bus rating of the panelboards, from the feed-through lugs to the main lugs only of Section #2 panelboard.
- N. Touchup scratched or marred surfaces to match original finish.
- O. Neatly form wire inside of panelboard.

3.02 FIELD QUALITY CONTROL

- A. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
- B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections using calibrated torque wrench for circuit breakers, bus stabs, and busses.

END OF SECTION

SECTION 26 2600
LOW-VOLTAGE ELECTRICAL DISTRIBUTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Arrangement with Utility Company for permanent and temporary electric services, including payment of Utility Company charges for service.
- B. Underground service entrance.
- C. Metering equipment.

1.02 RELATED SECTIONS

- A. Section 31 2100 – Earth Moving.
- B. Section 31 2323 - Backfilling.
- C. Section 31 2316 - Trenching.
- D. Section 03 300 - Cast-In-Place Concrete for pad mounted transformers and/or free-standing C.T. cabinets.
- E. Section 26 0533 – Raceway and Boxes for Electrical Systems.
- F. Section 26 0526 - Grounding and Bonding for Electrical Systems.
- G. Section 26 0529 – Hangers and Supports for Electrical Systems.

1.03 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. NETA – National Electrical Testing Association.

1.04 SYSTEM DESCRIPTION

- A. Utility Company: Entergy of Arkansas.
- B. System Characteristics: 208 volts, three phase, four- wire, 60 Hertz.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with Utility Company written requirements.
- B. Maintain one copy of each document on site.

1.06 REGULATORY REQUIREMENTS

- A. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.
- B. Conform to the requirements of NFPA 70 - National Electrical Code, ANSI/IEEE C2 - National Electrical Safety Code, and Arkansas Public Service Commission rules and regulations.

1.07 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on Utility Company drawings.

PART 2 - PRODUCTS

2.01 UTILITY METERS

- A. Meters will be furnished and installed by Utility Company.

2.02 UTILITY METER BASES

- A. Meter bases will be purchased by Contractor from Utility Company and installed by the Contractor.

2.03 UTILITY CURRENT TRANSFORMER CABINET

- A. Current transformer cabinet shall be purchased by Contractor from Utility Company and shall be installed by Contractor per directions from Utility Company.

2.04 TRANSFORMER PAD

- A. Description: Concrete transformer pad with cable pit sized as indicated on Drawings.

2.05 GROUND GRID

- A. Stranded copper conductors, exothermic connections, and copper clad steel ground rods as directed by Utility Company.

2.06 LUGS

- A. Contractor shall provide lugs to the Utility to connect underground service conductors to pad-mounted transformer secondary terminals.

2.07 CONDUITS

- A. Above ground conduit shall be threaded rigid steel.
- B. Underground conduit shall be Schedule 80 with IMC elbows.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that service equipment is ready to be connected and energized.

3.02 PREPARATION

- A. Make arrangements with Utility Company to obtain permanent and temporary electric services to the Project.
- B. Coordinate location of Utility Company's facilities to ensure proper access is available.
- C. Pay all fees for electrical service to Utility Company.

3.03 INSTALLATION

- A. Install service entrance conduits and conductors from Utility Company's transformer to building service entrance equipment.
- B. Provide cast-in-place concrete pad and ground grid for Utility Company transformer and/or free-standing C.T. cabinet, under the provisions of Section 03 300.
- C. Provide buried PVC conduit from primary compartment of transformer pad to Utility Company's pole as directed by Utility Company.
- D. Install meter and current transformer cabinet as directed by Utility Company.
- E. Provide and install secondary lugs at transformer and lugs at current transformer cabinet.
- F. Level concrete pads.
- G. Dress up areas of excavation.
- H. Ground enclosures, current transformers, and meter.
- I. Install conduit hubs when exiting the top or sides of a NEMA 3R enclosure.
- J. Install weatherheads on ends of conduits for overhead services.
- K. Install meters, current transformer cabinets, and outdoor service equipment on 1-1/2-inch channels.

3.04 FIELD QUALITY CONTROL

- A. Torque lugs to NETA specifications.

END OF SECTION

SECTION 26 2726

WIRING DEVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Wall switches.
- B. Receptacles.
- C. Occupancy Sensors.
- D. Device plates.

1.02 RELATED SECTIONS

- A. Section 26 0533 - Boxes.
- B. Section 26 0553 - Electrical Identification: Labels on computer outlets.

1.03 REFERENCES

- A. NEMA WD 1 - General Purpose Wiring Devices.
- B. NEMA WD 6 - Wiring Device Configurations.
- C. UL 20 - General Use Snap Switches.
- D. UL 498 - Attachment Plugs and Receptacles.
- E. UL 894 - Switches for Use in Hazardous (Classified) Locations.
- F. UL 1010 - Receptacle Plug Combinations for Use in Hazardous (Classified) Locations.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.
- C. Manufacturer's Instructions:
 - 1. Indicate application conditions and limitations of use stipulated by product testing agency specified under regulatory requirements.
 - 2. Include instructions for storage, handling, protection, examination, preparation, operation, and installation of product.

1.05 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.06 EXTRA MATERIALS

- A. Provide protective rings and split nozzles as required and as specified.

PART 2 - PRODUCTS

2.01 WALL SWITCHES

- A. Single Pole Switch:
 - 1. Hubbell #1221.
 - 2. Pass & Seymour #20AC1.
 - 3. Cooper Wiring Devices #2221.
 - 4. Leviton #1221.

- B. Double Pole Switch:
 - 1. Hubbell #1222.
 - 2. Pass & Seymour #20AC2.
 - 3. Cooper Wiring Devices #2222.
 - 4. Leviton #1222.
- C. Three-way Switch:
 - 1. Hubbell #1223.
 - 2. Pass & Seymour #20AC3.
 - 3. Cooper Wiring Devices #2223.
 - 4. Leviton #1223.
- D. Four-way Switch:
 - 1. Hubbell #1224.
 - 2. Pass & Seymour #20AC4.
 - 3. Cooper Wiring Devices #2224.
 - 4. Leviton #1224.

2.02 RECEPTACLES

- A. Single Convenience Receptacle:
 - 1. Hubbell #5361.
 - 2. Pass & Seymour #5361.
 - 3. Cooper Wiring Devices #5361.
 - 4. Leviton #5361.
- B. Duplex Convenience Receptacle:
 - 1. Hubbell #5362.
 - 2. Pass & Seymour #5362.
 - 3. Cooper Wiring Devices #5362.
 - 4. Leviton #5362.
- C. GFCI Receptacle:
 - 1. Hubbell #GF5352.
 - 2. Pass & Seymour #2091.
 - 3. Cooper Wiring Devices #XGF20.
 - 4. Leviton #GF5352.
- D. Isolated Ground Duplex Receptacle:
 - 1. Hubbell #IG5362.
 - 2. Pass & Seymour #IG6300.
 - 3. Cooper Wiring Devices #IG5362.
 - 4. Leviton #IG5362.
- E. Special Purpose Receptacle:
 - 1. Type, NEMA configuration and voltage as specified on Drawings as manufactured by:
 - a. Hubbell.
 - b. Pass & Seymour.
 - c. Cooper Wiring Devices.
 - d. Leviton.
- F. Color of devices as selected by Architect/Engineer.

2.03 OCCUPANCY SENSORS

- A. APPROVED MANUFACTURES
 - 1. Hubbell
 - 2. WattStopper
 - 3. Engineer approved
- B. TYPE: Sensors shall be "Dual Technology" unless otherwise noted on plans

C. INSTALLATION

1. The Occupancy Sensor system shall sense the presence of human activity within the desired space and fully control the "On" / "Off" function of the lights.
2. Time Delay settings shall be set at 10 minutes. This delay selection is based on lamp life vs. energy savings and sensor performance. Corridors and Bathroom time delay shall be set for 30 minutes to provide safety in such areas.
3. Contractor shall adjust sensor sensitivity so the device will operate properly.
4. Manufacture specified on drawings is specific to design. If an alternate manufacture is selected, the contractor is responsible for additional sensors, power pack, and additional equipment to meet the design needs. Also, contractor is to provide manufactures drawings with sensor coverage located on drawings. The revised drawing shall be included with the shop drawings. Alternate plan will only be approved once the engineer has reviewed this information.

2.04 WALL PLATES

- A. Cover Plates: Stainless steel.
- B. Weatherproof Enclosures:
 1. Receptacles in wet locations shall be installed with an outlet enclosure clearly marked "Suitable for Wet Locations While in Use". There shall be a gasket between the enclosure and the mounting surface, and between the cover and the base to assure proper seal.
 2. The enclosure must employ stainless steel mounting hardware and be constructed of impact resistant polycarbonate. The outlet enclosure shall be UL listed and shall be as manufactured by TayMac Corporation, or approved equal.
- C. Isolated Ground Receptacle/Computer Receptacle: Cover plates shall have "Computer" with black letters on clear background written from typewriter equal to Thomas & Betts at top or coverplate.
- D. Wall-mounted Occupancy Sensors: Coverplates shall be suitable for sensor type and shape.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify conditions.
- B. Verify outlet boxes are installed at proper height.
- C. Verify wall openings are neatly cut and will be completely covered by wall plates.
- D. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.
- E. Verify color of all devices and coverplates.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean debris from outlet boxes.

3.03 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install devices plumb and level.
- C. Install single and double pole switches with OFF position down.
- D. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.
- E. Install plates on switch, receptacle, and blank outlets in all areas.
- F. Connect wiring devices by wrapping conductor around screw terminal in clockwise direction and tightening screw. Where wiring device has two (2) plates tightened by a screw, this method may be

used. However, other back-connected wiring devices, which depend upon a metal spring action, are not allowed.

- G. Use jumbo size plates for outlets installed in masonry walls.
- H. Install galvanized steel plates on outlet boxes and junction boxes above accessible ceilings, and on surface mounted outlets.
- I. All plates shall be secured by means of screws with heads matching plates.
- J. Vertically mounted receptacles shall be installed with equipment grounds down, unless local codes require otherwise. Horizontally mounted receptacles shall be installed with equipment grounds to the right, unless local codes require otherwise. Regardless, all receptacles, including GFCI receptacles, shall be installed in the same way with the ground, turned in the same direction.
- K. Install labels on computer outlets.

3.04 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes provided under Section 26 0533 to obtain mounting heights specified and indicated on Drawings.
- B. Install wall switches 48 inches above finished floor to the center of the box.
- C. Install convenience receptacle 18 (vertically oriented) inches above finished floor unless noted otherwise on Drawings.
- D. Install convenience receptacle 6 (horizontally oriented) inches above finished counter.

3.05 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify that each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.
- F. Check tightness of all conductor connections.

3.06 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 26 2816
ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fusible switches.
- B. Non-fusible switches.
- C. Fuses.
- D. Enclosed circuit breakers.

1.02 REFERENCES

- A. ASME A17.1 - Safety Code for Elevators and Escalators.
- B. NECA (National Electrical Contractors Association) "Standard of Installation".
- C. NEMA AB 1 - Molded-Case Circuit Breakers.
- D. NEMA KS 1 - Enclosed Switches.
- E. NFPA 70 - National Electrical Code.
- F. UL 50 - Enclosures for Electrical Equipment.
- G. UL 98 - Enclosed and Dead-Front Switches.
- H. UL 198C - High Interrupting Capacity Fuses; Current Limiting Type.
- I. UL 198E - Class R fuses.
- J. UL 363 - Knife Switches.
- K. UL 489 - Molded-Case Circuit Breakers and Circuit Breaker Enclosures.
- L. UL 1066 - Low Voltage AC and DC Power Circuit Breakers Used in Enclosures.
- M. UL 1332 - Organic Coatings for Steel for Outdoor-Use Electrical Equipment Enclosure.

1.03 RELATED SECTIONS

- A. Section 09 900 - Painting: Touchup.
- B. Section 26 0529 – Hangers and Supports for Electrical Systems.
- C. Section 26 0553 - Identification for Electrical Systems.
- D. Section 26 0548 – Vibration and Seismic Controls for Electrical Systems.

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Product Data: Provide switch ratings and enclosure dimensions.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with NECA Standard of Installation.

1.06 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by UL as suitable for purpose specified and shown.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Disconnect switches shall be heavy duty, as manufactured by,
 - 1. Square D
 - 2. General Electric
 - 3. Siemens ITE
 - 4. Cutler-Hammer

2.02 ENCLOSED SWITCHES

- A. Fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch, with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse clips: Designed to accommodate Class R fuses.
- B. Non-fusible Switch Assemblies: NEMA KS 1, Type HD load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position.
- C. Enclosures: NEMA KS 1.
 - 1. Interior Dry Locations: Type 1.
 - 2. Exterior Locations: Type 3R.

2.03 ENCLOSED CIRCUIT BREAKERS

- A. Enclosures: NEMA KS 1.
 - 1. Interior Dry Locations: Type 1.
 - 2. Exterior Locations: Type 3R, lockable.
- B. Minimum integrated short circuit rating as indicated on the Drawings shall be fully rated rating. Series-Rated equipment will not be accepted.
- C. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles. Provide circuit breakers UL listed as Type SWD for lighting circuits. Provide UL Class A ground fault interrupter circuit breakers where scheduled. Do not use tandem circuit breakers. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.
- D. Cabinet: Finish in manufacturer's standard gray enamel.
- E. 480Y277 volt main circuit breakers rated 1000 amperes or more shall have ground fault protection.

2.04 FUSES

- A. Manufacturers:
 - 1. Bussman.
 - 2. Gould-Shawmut.
 - 3. Little.
- B. Description: Dual element, current limiting, time delay, one-time fuse, 600 volt, UL 198E, Class RK 1.
- C. Interrupting Rating: 200,000 rms amperes.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install the electrical device where indicated.
- B. Install fuses in fusible disconnect switches.
- C. Install equipment ground bus in enclosed circuit breaker / switch.
- D. Provide adhesive label on inside door of each switch indicating UL fuse class and size for replacement.

- E. Provide label on outside cover as directed by Section 26 0553 - Identification for Electrical Systems.
- F. Provide three (3) spare fuses of each type utilized.
- G. Bolt enclosed circuit breaker / switch to mounting surface in accordance with Section 26 0529.
- H. Where wall-mounted circuit breaker / switches are mounted to be operated from floor or grade, install switch with middle of switch at 48 inches, if switch is less than 6'-6" tall. If switch is taller than 6'-6" tall, install switch with top of switch at 7'-6".
- I. When the electrical devices are installed on exterior basement walls or outside, the switches shall be mounted on 1-1/2-inch channels.
- J. Enclosed switches for wall-mounted exhaust fans installed higher than 8' from the floor, shall be installed high on the wall next to the exhaust fan.
- K. Install nameplate on disconnect switch with designation of equipment being served by switch. If main switch, install "Main Disconnect" nameplate.
- L. Touchup scratched or marred surfaces to match original finish.
- M. Connect elevator battery lowering device to auxiliary contact of elevator disconnect switch.
- N. Neatly form wires inside switches.

3.02 FIELD QUALITY CONTROL

- A. Check tightness of conductor lugs using calibrated torque wrench.

END OF SECTION

SECTION 26 4313

SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.
- B. Related Requirements:
 - 1. Section 26 2413 "Switchboards" for factory-installed SPDs.
 - 2. Section 26 2416 "Panelboards" for factory-installed SPDs.

1.03 DEFINITIONS

- A. Inominal: Nominal discharge current.
- B. MCOV: Maximum continuous operating voltage.
- C. Mode(s), also Modes of Protection: The pair of electrical connections where the VPR applies.
- D. MOV: Metal-oxide varistor; an electronic component with a significant non-ohmic current-voltage characteristic.
- E. OCPD: Overcurrent protective device.
- F. SCCR: Short-circuit current rating.
- G. SPD: Surge protective device.
- H. VPR: Voltage protection rating.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.05 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Sample Warranty: For manufacturer's special warranty.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For SPDs to include in maintenance manuals.

1.07 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: [Five] <Insert number> years from date of Substantial Completion.

1.08 QUALIFICATIONS AND TESTING

- A. Quality Assurance - The unit shall be thoroughly factory-tested before shipment. Testing of each unit shall include, but shall not be limited to, quality assurance checks, MCOV, and clamping voltage verification tests.

- B. MCOV Testing - The unit shall be factory tested and burned in at the applicable MCOV for a minimum of one (1) hour.
- C. Start-Up Testing - Upon request by the engineer, and after completion of installation, a factory-certified local service technician shall perform testing services. The following tests shall be performed: (a) voltage measurements from L-G, L-N, L-L and N-G at the time of the testing procedure, (b) impulse injection to verify the system suppression voltage tolerances for all suppression paths. Test results shall be recorded, compared to factory benchmark test parameters supplied with each individual unit. A copy of the start-up test results shall be supplied to the engineer for confirmation of proper suppression filter system function. In addition, the integrity of the N-G bond shall be verified through testing.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. ABB France.
 - 2. Eaton Corporation.
 - 3. Emerson Electric Co.
 - 4. GE Zenith Controls.
 - 5. LEA International; Protection Technology Group.
 - 6. Leviton Manufacturing Co., Inc.
 - 7. PowerLogics, Inc.
 - 8. Schneider Electric Industries.
 - 9. Siemens Industry, Inc.

2.02 GENERAL SPD REQUIREMENTS

- A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Comply with UL 1449.
- D. Maximum Continuous Operating Voltage (MCOV) - The maximum continuous operating voltage (MCOV) of all suppression components utilized in the unit shall not be less than 125 percent of the facility's nominal operating voltage for 120-volt nominal systems and not less than 115 percent of the facility's nominal operating voltage for 220-, 240-, 277-, 347-, 480-, 575-, and 600-volt nominal systems.

2.03 SERVICE ENTRANCE AND TRANSFER SWITCH SUPPRESSOR

- A. SPDs: Comply with UL 1449, Type 2
- B. SPDs: Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 1449, Type 2
 - 1. SPDs with the following features and accessories:
 - a. Integral disconnect switch.
 - b. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
 - c. Indicator light display for protection status.
 - d. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status.
 - e. Surge counter.
- C. Comply with UL 1283.
- D. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 200 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

- E. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V for 208Y/120 V.
 - 2. Line to Ground: 1200 V for 208Y/120 V.
 - 3. Line to Line: 1000 V for 208Y/120 V.
- F. Protection modes and UL 1449 VPR for 240/120 V, single-phase, three-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V.
 - 2. Line to Ground: 1000 V.
 - 3. Line to Line: 1000 V.
- G. SCCR: Equal or exceed 100 kA
- H. Inominal Rating: 20 kA.

2.04 PANEL SUPPRESSORS

- A. SPDs: Comply with UL 1449, Type 2
 - 1. Include LED indicator lights for power and protection status.
 - 2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
 - 3. Include Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status.
 - 4. Include integral surge counter
 - 5. Include integral disconnect
- B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.
- C. Comply with UL 1283.
- D. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V for 208Y/120 V
 - 2. Line to Ground: 700 V for 208Y/120 V.
 - 3. Neutral to Ground: 700 V for 208Y/120 V
 - 4. Line to Line: 1200 V for 208Y/120 V
- E. Protection modes and UL 1449 VPR for 240/120-V, single-phase, three-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V.
 - 2. Line to Ground: 700 V.
 - 3. Neutral to Ground: 700 V.
 - 4. Line to Line: 1200 V.
- F. SCCR: Equal or exceed 100 kA
- G. Inominal Rating: 10 kA

2.05 ENCLOSURES

- A. Indoor Enclosures: NEMA 250, Type 1.
- B. Outdoor Enclosures: NEMA 250, Type 3R

2.06 CONDUCTORS AND CABLES

- A. Power Wiring: Same size as SPD leads, complying with Section 26 0519 "Low-Voltage Electrical Power Conductors and Cables."
- B. Class 2 Control Cables: Multiconductor cable with copper conductors not smaller than No. 18 AWG, complying with Section 26 0519 "Low-Voltage Electrical Power Conductors and Cables."

- C. Class 1 Control Cables: Multiconductor cable with copper conductors not smaller than No. 14 AWG, complying with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with NECA 1.
- B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.
- C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
- D. Use crimped connectors and splices only. Wire nuts are unacceptable.
- E. Wiring:
 - 1. Power Wiring: Comply with wiring methods in Section 26 0519 "Low-Voltage Electrical Power Conductors and Cables."
 - 2. Controls: Comply with wiring methods in Section 26 0519 "Low-Voltage Electrical Power Conductors and Cables."

3.02 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.
 - 1. Compare equipment nameplate data for compliance with Drawings and Specifications.
 - 2. Inspect anchorage, alignment, grounding, and clearances.
 - 3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.
- B. An SPD will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.03 STARTUP SERVICE

- A. Complete startup checks according to manufacturer's written instructions.
- B. Do not perform insulation-resistance tests of the distribution wiring equipment with SPDs installed. Disconnect SPDs before conducting insulation-resistance tests, and reconnect them immediately after the testing is over.
- C. Energize SPDs after power system has been energized, stabilized, and tested.

3.04 DEMONSTRATION

- A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION

SECTION 26 5000

LIGHTING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Interior luminaires and accessories
- B. LED luminaires
- C. Exit signs.
- D. Emergency lighting units.
- E. Inverters
- F. Fluorescent Ballasts.
- G. Lamps.
- H. Luminaire accessories.

1.02 RELATED SECTIONS

- A. Section 09 900 - Painting: Touchup.
- B. Section 26 0533 – Raceway and Boxes for Electrical Systems.
- C. Section 26 0529 – Hangers and Supports for Electrical Systems.
- D. Section 26 0548 – Vibration and Seismic Controls for Electrical Systems.

1.03 REFERENCES

- A. ANSI C78.379 - Electric Lamps - Incandescent and High-Intensity Discharge Reflector Lamps - Classification of Beam Patterns.
- B. ANSI C82.1 - Ballasts for Fluorescent Lamps - Specifications.
- C. ANSI C82.4 - Ballasts for High-Intensity Discharge and Low-Pressure Sodium Lamps (Multiple Supply Type).
- D. ANSI/NFPA 70 - National Electrical Code.
- E. ANSI/NFPA 101 - Life Safety Code.
- F. NEMA WD 6 - Wiring Devices-Dimensional Requirements.
- G. UL 844 - Electric Lighting Fixtures for Use in Hazardous (Classified) Locations.
- H. UL 924 - Emergency Lighting and Power Equipment.
- I. UL 1570 - Fluorescent Lighting Fixtures.
- J. UL 1571 - Incandescent Lighting Fixtures.
- K. UL 1572 - High Intensity Discharge Lighting Fixtures.
- L. NEMA SSL 1-2010 – Electronic Drivers for LED Devices, Arrays, or Systems

1.04 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
- C. Product Data: Provide dimensions, ratings, and performance data.
- D. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of each luminaire.

1.06 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Division 1 and Section 26 0500.
- B. Maintenance Data: Include replacement parts list.

1.07 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Conform to requirements of NFPA 101.
- C. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

PART 2 – PRODUCTS

2.01 LUMINAIRES

- A. Furnish products as specified on Drawings.
- B. Install ballasts, lamps, and specified accessories at factory.
- C. All factory installed wiring shall be copper.

2.02 LED LUMINAIRES

- A. Furnish products as specified on Drawings.
- B. Color Temperature of 3500K for interior luminaires as listed in the fixture schedule on the plans, unless otherwise noted. The color temperature of exterior LED luminaires shall not exceed 4100K (nominal), unless otherwise noted.
- C. Luminaire Color Rendering Index (CRI) shall be a minimum of 80 for interior luminaires, and a minimum of 70 for exterior luminaires.
- D. Luminaire shall maintain 70% lumen output for a minimum of 50,000 hours.
- E. Driver shall have a rated life of 50,000 hours, minimum.
- F. Lumen output shall not depreciate more than 20% after 10,000 hours of use.
- G. LED driver shall be compatible with dimming controls where dimming controls where dimming is indicated on the plans. Dimmable drivers shall use Dimming Constant Current (DCC) or Pulse Width Modulation (PWM) operation.
- H. LED luminaires shall dim to (20%, 15%, 10%, 5%, or 0.1%) as specified in the fixture schedule on the plans without visible flicker or "popcorn effect". "Popcorn effect" is defined as the luminaire being on a pre-set dimmed level (less than 100%), and going to 100% prior to returning to the pre-set level when power is returned to the luminaire.
- I. The LED luminaire shall carry a limited 5-year warranty minimum (not pro-rated) for LED light engine(s)/board array, driver(s), and LED components.

2.03 EXIT SIGNS

- A. Manufacturers: As indicated on Drawings.
- B. Description: Self-contained exit sign fixture.
- C. Housing: High impact thermoplastic unless indicated otherwise on Drawings.
- D. Face: As indicated on Drawings.
- E. Directional Arrows: As indicated on Drawings.
- F. Mounting: As indicated on Drawings.
- G. Battery: Nickel-cadmium with sufficient capacity to operate lights for 90 minutes.

- H. Battery Charger: Dual-rate type, with sufficient capacity to recharge discharged battery to full charge within twelve hours.
- I. Lamps: Manufacturers standard LED lamps.
- J. Input Voltage: 120/277 volts.

2.04 EMERGENCY LIGHTING UNITS

- A. Manufacturers: As indicated on the Drawings.
- B. Description: Self-contained emergency lighting units.
- C. Housing: High impact thermoplastic.
- D. Mounting: As indicated on the Drawings.
- E. Battery: Nickel-cadmium sealed maintenance free, capable of operating lights for 90 minutes
- F. Battery Charger: Dual-rate type, with sufficient capacity to recharge battery to full charge within 12 hours.
- G. Lamps: Manufacturer's standard incandescent lamps.
- H. Input Voltage: 120/277 volts.
- I. Test Circuit: "Push-to-test" batteries and lamps.

2.05 INVERTERS

- A. Inverter Manufacturers:
 - 1. Bodine
 - 2. Dual-Lite
 - 3. Evenlite
- B. Emergency Inverters shall be sine-wave type, or have written confirmation from the luminaire manufacturer that the luminaire will function with a square-wave inverter.

2.06 BALLASTS

- A. Fluorescent Ballast:
 - 1. Description: ANSI C78.1, C62.41 Category A, high power factor electronic type, less than 10 percent harmonic distortion, with resetting thermal protectors, equal to Advance Mark V.
 - 2. Provide ballast suitable for lamps specified.
 - 3. Voltage: Match luminaire voltage.
 - 4. Source Quality Control: Certify ballast design and construction by Certified Ballast Manufacturers, Inc. Sound level shall be Class A.
- B. Emergency Ballasts:
 - 1. All emergency ballasts for one or two lamp operation shall be equal to Bodine B-50 with a 5-year warranty (not pro-rated).
 - 2. All emergency ballasts shall meet UL 924.

2.07 LAMPS

- A. Fluorescent Lamp Manufacturers:
 - 1. Osram/Sylvania.
 - 2. Phillips.
 - 3. General Electric.
- B. HID Lamp Manufacturers:
 - 1. Phillips
 - 2. Sylvania
 - 3. Venture
- C. Provide lamp type specified for luminaire.
- D. Fluorescent lamps shall be of the low mercury type.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrate and supporting grids for luminaires.
- B. Examine each luminaire to determine suitability for lamps specified.

3.02 INSTALLATION

- A. Install in accordance with manufacturers instructions.
- B. In seismic design category D, E, & F, fixtures installed in lay-in ceiling grid shall be supported as follows in addition of being securely fastened to the ceiling grid. Refer to specification section 26 0548 for additional fixture support information.
 - 1. Less than 10lbs: one 12-gauge safety wire connected to structure.
 - 2. More than 10lbs but less than 56lbs: two 12-gage safety wires connected to structure.
 - 3. More than 56lbs: shall be supported directly from structure independent of the ceiling grid
- C. Locate recessed ceiling luminaires as indicated on Architectural reflected ceiling plan.
- D. Install surface mounted luminaires and exit signs plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
- E. Exposed Grid Ceilings: Fasten surface mounted luminaires to ceiling T using bolts, screws, rivets, or suitable clips. On non-fire rated lay-in ceilings, Contractor shall install surface-mounted fluorescent light fixtures on 1-1/2-inch spacers.
- F. Install recessed luminaires to permit removal from below. Final connections to lay-in light fixtures shall be made with 6'-0" flexible conduit from junction box to light fixture. Flexible conduit shall not go from light fixture to another light fixture.
- G. Install recessed luminaires using accessories and fire stopping materials to meet regulatory requirements for fire rating at ceiling.
- H. Install clips to secure recessed grid-supported luminaires in place.
- I. Install wall mounted luminaires, emergency lighting units and exit signs at height as indicated on Drawings as scheduled.
- J. Install all accessories furnished with each luminaire or as required for a complete installation as indicated.
- K. Connect luminaires, emergency lighting units and exit signs to outlets provided under Section 26 0533 as indicated.
- L. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- M. Bond products and metal accessories to branch circuit equipment grounding conductor.
- N. Install specified lamps in each luminaire, emergency lighting unit and exit sign.
- O. All fixtures shall be guaranteed for a period of one year after final acceptance and any defects in material or workmanship during this period shall be replaced or repaired to the Engineer's satisfaction without extra cost.
- P. All supports, safety chains, swivels, etc. shall be furnished as required for a complete installation.
- Q. Securely fasten all exit signs and emergency lighting units to surface to which they are mounted.
- R. Replace all broken or cracked lens.
- S. Replace all scratched or bent reflectors and doorframes.
- T. Light fixtures shall be supported by lay-in ceilings or by supports to the building structure.
- U. Light fixtures shall not be supported from conduits, duct or piping.
- V. All recessed light fixtures shall have seismic clips firmly situated over tops of ceiling grid tees or

plaster rings.

- W. All light fixtures that weigh more than 50 pounds shall have a safety chain or safety cable in addition to its other support.
- X. 2 by 2 light fixtures shall have louvers and lamps oriented in the same direction.
- Y. Touchup scratched or marred surfaces to match original finish.
- Z. Surface-mounted light fixtures shall be mounted at least 80 inches above the floor to the bottom of the light fixtures.

3.03 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.
- B. Turn off circuit breakers serving emergency self-contained ballasts, emergency lighting units, and self-contained exit signs to verify that emergency lighting is working properly.

3.04 ADJUSTING

- A. Aim and adjust luminaires as indicated on Drawings or as directed.
- B. Adjust exit sign directional arrows as indicated.
- C. Re-lamp luminaires that have failed lamps at Substantial Completion. Fluorescent lamps that fail within the first 90 days of operation will be considered defective and shall be replaced at no extra cost.
- D. If Owner complains of glare from light fixtures; add glare control, adjust light fixtures, or relocate light fixture as required to remove objectionable glare.

3.05 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosure.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

END OF SECTION

