

STATE DATA CENTER WEST UPS REPLACEMENT
DEPARTMENT OF SHARED ADMINISTRATIVE SERVICES
OFFICE OF STATE TECHNOLOGY
LITTLE ROCK, ARKANSAS

DBA Project # 4702501RLF



P & P PROJECT NO. 26-006



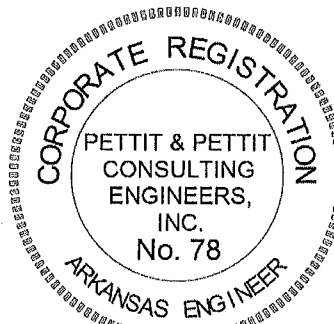
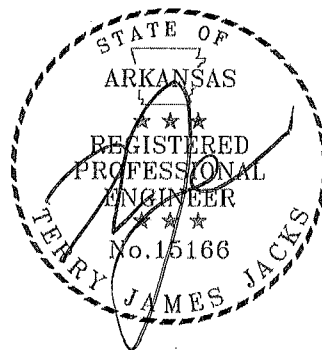
SEPTEMBER 2026

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The Engineer of Record for Divisions 00, 01, and 23 of the State Data Center West UPS Replacement, SAS / Office of State Technology, Little Rock, Arkansas, DBA Project # 4702501RLF (P&P Job No. 26-006) is:

10/5/20
Date



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PETTIT & PETTIT
CONSULTING ENGINEERS, INC.

INVITATION TO BID
Section 00 11 16 / Rev: August 2025

Pettit and Pettit Consulting Engineers

State Data Center West UPS Replacement

201 E. Markham St.
Little Rock, Ar, 72201
501 374-3731

DBA Project #: 4702501RLF
Owner/Agency: Office of State Technology

- 1) You are invited to bid on a General Contract for the:
Construction of: State Data Center West UPS Replacement
Located At: Little Rock, AR 72212
Project Owner: Office of State Technology
Bid Type: Lump Sum Basis: Lowest Responsive and Responsible Bidder
- 2) There will be a Mandatory Pre-Bid Conference
Date: Thursday, October 22, 2026
Time: 10:00 a.m.
Location: 11025 Anderson Dr., Ste 230, Little Rock, AR 72212

The State reserves the right to schedule future meetings.

Bids received from any bidder failing to attend any mandatory meeting(s) shall be declared non-responsive.

- 3) The Owner will receive bids until:
Date: Wednesday, October 28, 2026
Time: 2:00 p.m.
Location: Division of Building Authority, 501 Woodlane St. Suite 101N, Little Rock, Arkansas 72201

Sealed bids may be mailed or delivered to the above address. Bids received after the date and time stated in the solicitation and will not be considered. Bids will be publicly opened and read aloud at the time and date mentioned. Interested parties are invited to attend. The Division of Building Authority, hereinafter termed DBA, unless designated to another entity, supervises the bidding and award of all construction contracts, approves contract change orders, request for final payment and ensures on-site observations are accomplished.

- 4) Obtaining contract documents through any source other than the Design Professional listed above or their representative(s) is not advisable due to the risks of receiving incomplete or inaccurate information. Contract documents obtained through the Design Professional or their representative(s) are considered the official version and take precedence should any discrepancies occur. The official version of the complete set of the contract documents should be examined and are obtainable from:
Southern Reprographics, 901 W 7th St, Little Rock, Arkansas 72201. 501.372.4011
- 5) Bid document deposit and refund information:
- 6) While contract documents can be examined at the following plan room(s), bidders should use caution in doing so:

- 7) Bid Security in the amount of five (5) percent of the bid must accompany each bid in accordance with the Instructions to Bidders.
- 8) Bidders are hereby notified that any bidder who desires to enter into Contract for this work must comply with disclosure requirements pursuant to Governor Executive Order 98-04. Submission to the Owner and DBA of the completed Disclosure (DBA 00 73 73) form will be a condition of the Contract. The Owner cannot enter into any contract nor can DBA approve any contract, which does not obligate the Contractor to require the submission of Disclosure (DBA 00 73 73) forms for subcontracts exceeding \$25,000.
- 9) Bidders are hereby notified that Davis-Bacon prevailing wage rates and other Federal regulations will apply.
- 10) The State reserves the rights to reject any and all bids, and to waive any formalities. Bidders shall conform to the requirements of the Arkansas licensing laws and regulations for contractors, and shall be licensed before his bid is submitted unless the project is federally funded pursuant to Arkansas Code Annotated § 17-25-315.
- 11) Pursuant to Arkansas law, bidders must submit with their bid a completed Certifications for Contracting with the State of Arkansas (DBA 00 45 00) form.

To: All Bidders
From: Division of Building Authority, Construction Section
Re: Common Bidding Mistakes
Date: 8/1/2025

The following list* are the eleven most common mistakes which occur in the bid submittal process and result in bid rejections.

- 1) Not listing the Subcontractor's name or the Contractors name (Mechanical, Plumbing, Electrical, Roofing) in the space provided on the bid form.*
- 2) The listed Subcontractor's is unlicensed to do the listed work.*
- 3) Bid Bond is not signed by a resident / non resident agent licensed within Arkansas.*
- 4) Addenda are not acknowledged by the Contractor on the Bid Form.*
- 5) Failure to submit any bid security or the issuing surety company for the Bid Bond is not qualified and authorized to do business within the State and is not listed on the current United States Department of the Treasury's listing of approved sureties.*
- 6) Bid Bond or Bid Form is not signed by the Contractor or Contractors representative.*
- 7) Expired Contractor's license or is misclassified for the work.*
- 8) Bid Bond not accompanied by the Agent's Power of Attorney, or the name of the resident / non resident agent is not shown on the Power of Attorney.*
- 9) Bid Security (Bid Bond or Cashiers Check) made out to the wrong entity (Obligee or Payee), the bid security must be made out to the Owner.*
- 10) Failure to submit attachments, such as unit prices and certifications, with the bid form, if required by the bid documents.*
- 11) Bidder fails to initial any revised entries on the submitted bid form. All changes shall be made by striking through the wrong entry and the corrected entry shall be inserted on the Bid Form and initialed.*

*This is NOT an all inclusive checklist and is only being provided as informational assistance to bidders. Bidders should become familiar with all the bid documents, procedures, rules and laws governing bid submittals and state contracting processes.

INSTRUCTIONS TO BIDDERS
Section 00 21 13 / Rev: August 2025

1. **BIDDING DOCUMENTS.** Bidders may obtain complete sets of Contract Documents from issuing office designated in the Invitation to Bid. Complete sets of Contract Documents must be used in preparing bids; neither Owner nor Design Professional assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. Obtaining Contract documents through any source other than the Design Professional listed in the Invitation to Bid is not advisable due to the risks of receiving incomplete or inaccurate information, and the bidder runs the risk of basing bidder's proposal on such information. The documents obtained through the Design Professional or his representative(s) or DBA are considered the official version and take precedence if any discrepancies occur. The fact that documents used for bidding purposes are named "contract documents" does not diminish in any way the right of the State to reject any and all bids and to waive any formality.
2. **EXAMINATION OF DRAWINGS, SPECIFICATIONS AND SITE OF WORK.** Bidder shall examine the Contract Documents and visit the project site of work. Bidder shall become familiar with all existing conditions and limitations under which the Work is to be performed, and shall base bid on items necessary to perform the Work as set forth in the Contract Documents. Failure to do so is at the sole risk of the bidder. No allowance will be made to Bidder because of lack of such examination or knowledge. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such examination.
3. **INTERPRETATION OF CONTRACT DOCUMENTS DURING BIDDING.**
 - 3.1 All references to the Owner shall be interpreted to mean the Agency for whom the work is being contracted.
 - 3.2 If any person contemplating submitting a Bid is in doubt as to the true meaning of any part of the Contract Documents or finds discrepancies in or omissions from any part of the Contract Documents, he may submit to the Design Professional a written request for an interpretation or correction thereof not later than five (5) calendar days before Bid opening. In those instances where a Design Professional is not involved with the project, written requests for interpretation or correction may be made to the DBA Construction Section within the time frame stated above. Bidders shall not make additions, notations, clarifications, reservations, or exceptions to the bid form proposal or include additional documents regarding additions, notations, clarifications, reservations, or exceptions. See also # 6.1. Segregated bids, alternate bids or assignments ("additions") shall not be considered. The reading of a bid is not inclusive of the Bidder's additions, notations, clarifications, reservations, or exceptions and shall not change the Bidder's responsibilities and duties to provide all labor, materials, services and equipment necessary for, or incidental to, the construction of the project pursuant to the contract documents, including the time set forth and the lump sum base bid stated in the bid proposal.

- 3.3 Address all communications regarding the Contract Documents to the Design Professional.

In those instances where a Design Professional is not involved, address all such communications to DBA Construction Section, 501 Woodlane, Suite 101N, Little Rock, AR 72201 (501-682-1833).

- 3.4 Interpretation or correction of the Contract Documents will be made only by Addendum and will be issued by fax transmission to, hand delivered to, electronic notification to or picked up by potential bidders who received plans and specifications from the official plan distribution entity. The Design Professional shall be responsible for issuance of all addenda and documentation relating to its issuance (not receipt). In those instances where a Design Professional is not involved, the DBA Construction Section shall distribute Addenda in the above referenced manner. Bidders are responsible for verifying if any Addenda were issued prior to bid submittal. The State will not be responsible for oral explanations or interpretation of the Contract Documents.

- 3.5 Addenda issued during the bidding period will be incorporated into the Contract Documents.

4. **SUBSTITUTIONS.**

- 4.1 Materials, products, and equipment described in the Contract Documents establish a standard of required function and a minimum desired quality or performance level, or other minimum dimensions and capacities, to be met by any proposed substitution. Acceptability of substitutions will not be considered during bidding period.

- 4.2 In some cases, prior approval of material or equipment, or both shall be obtained from Owner in order to obtain the desired color, size, visual appearance, and other features specified.

5. **TYPE OF BID.**

- 5.1 The Work under this Contract will be awarded under a stipulated sum contract to the lowest responsive and responsible base bid amount. No segregated bids, alternate bids, or assignments will be considered.

- 5.2 The estimate of quantities is approximate only and shall be the basis for receiving unit price bids for each item, but shall not be considered by the Bidder as the actual quantities that may be required for the completion of the proposed work. Bidder shall state a unit price for every item of work named in the Proposal. Bidder shall include, in the unit prices, furnishing of labor, materials, tools, equipment, and apparatus of every description to construct, erect, and finish the Work. The unit price bid for the items shall be shown numerically and in the appropriate spaces provided on the Bid Form. Such figures shall be clear and distinctly legible so that no question can arise as to their intent or meaning. Unit price bids and totals shown in the Bid Form shall not include costs of engineering, advertising, printing and appraising.

6. **PREPARATION OF BID.**

- 6.1 Bid shall be made on an unaltered Bid Form identical to the form included with the Contract Documents. Fill in all blank spaces and submit one original. Bidders shall not strike through or add language to the bid form unless Bidders are modifying language previously inserted by the bidders themselves. Bidders should contact the DBA Construction Section for questions or concerns regarding the bid form. If this solicitation requires bidding on all items, failure to do so will disqualify the bid. Bidder shall furnish all information required by the solicitation and bid documents. Bids shall be signed with name printed below the signature. The Contractor's license number issued by the Contractors Licensing Board shall be placed on the Bid Form whenever the total project amount is \$50,000 or more.

Where Bidder is a corporation, bids shall be signed with the legal name of the corporation and the signature of an authorized officer of the corporation. Bids signed by an agent shall be accompanied by evidence of that agent's authority. The name of the state of incorporation, contractor's license number issued by the Contractors Licensing Board should be listed. Bids submitted by contractors who are not properly licensed shall be rejected.

- 6.2 Bids submitted by a "Joint Venture/Joint Adventure" shall be signed by representatives of each component part of the Joint Venture/Joint Adventure. The licenses of each component part of the Joint Adventure should also be listed in the bid submittal. Therefore, joint adventure bidders shall indicate at least two (2) signatures and should indicate two (2) licenses numbers on the Bid Form. Exception: Joint Ventures who have been properly licensed with the Arkansas Contractors Licensing Board as a "Joint Venture" need only to indicate the joint venture license number on the Bid Form. Joint Venture Bidders shall indicate at least two (2) signatures on the bid form even if they are licensed as a joint venture.
- 6.3 Bidder shall not enter into an agreement for any portion of the Work (services, materials, supplies, equipment, etc.) throughout the term of the Contract with any design professional (or firm) who is under contract to the Owner to provide administration of the Contract.
- 6.4 Depending on the specific project requirements, **the following is a GENERIC list** of all possible bid forms that may be due with bid submittals. Bidders must verify each specific project's requirements in Section 00 41 13 to ensure they have provided all the required documentation with their submission.

Bid Submittal – due before stated date and time of bid opening (see Invitation to Bid Section 00 11 16):

00 41 13 Bid Form (all pages are always required)

00 43 13 Bid Security

00 43 22 Unit Prices Form (if required)

00 45 00 Certifications for Contracting with the State of Arkansas Form

7. BID GUARANTEE AND BONDS.

- 7.1 Each bid proposal shall include a bid security in the amount of five percent of the total bid offered, if the bid is in excess of \$50,000.00. The bidder will be required to submit a bid security, which includes enclosing a cashiers check payable to the order of the OWNER drawn upon a bank or trust company doing business in Arkansas or by a corporate bid bond in an amount equal to five (5) percent of the bid. The bidder shall include in the bid the bid bond amount so that the bid represents the total cost to the Owner of all work included in the contract. Bid bonds shall be made by a surety company qualified and authorized to do business in the State of Arkansas and are listed on the current United States Department of the Treasury's listing of approved sureties. The bid bond shall be executed by a resident or non-resident agent who is licensed by the Arkansas Insurance Commissioner to represent the surety company executing the bond. The agent shall file a power of attorney to act on the behalf of the bonding company with the bid bond. Bidders may utilize a DBA Bid Bond form, however they are not required to do so; other bid bond formats are acceptable.

In any event, regardless of the type of bid security or the format of the bid bond chosen by the Bidder, failure to submit a valid bid security in accordance with Arkansas laws and regulations, including a power of attorney with the bid bond, shall render the bidders proposal void.

- 7.2 The bid security shall indemnify the Owner against failure of the Contractor to execute and deliver the contract and necessary bond (Performance and Payment Bond) for faithful performance of the contract. The bid security shall provide that the contractor or surety must pay the damage, loss, cost and expense subject to the amount of the bid security directly arising out of the Contractor's default in failing to execute and deliver the contract and bonds.
- 7.3 Owner will have the right to retain the bid security of bidders to whom an award is being considered until the Contract has been executed and bonds if required, have been furnished, or until specified time has elapsed so that bids may be withdrawn, or all bids have been rejected.
- 7.4 Failure to execute the Contract and file an acceptable full payment and performance bond and proof of insurance within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after the intent to award has been issued to the bidder shall be just cause for the cancellation of the award and forfeiture of the bid security, which shall become the property of the agency, not as a penalty but in liquidated damages sustained. Award may then be made to the next lowest responsible bidder, or the work may be rebid and constructed under contract or otherwise as the State determines. The responsible low bidder who fails to execute the Contract and submit an acceptable payment and performance bond and proof of insurance will not be permitted to bid on any subsequent advertisement of that project.

8. **PERFORMANCE AND PAYMENT BOND.** Performance and Payment Bonds are not required for bids \$50,000.00 or under, except for roofing projects. For work exceeding \$50,000.00, the Contractor shall furnish a Performance and Payment Bond in the amount equal to 100 percent of contract price, on a form identical to the Performance and Payment Bond Form included with the Contract Documents as security for faithful performance of the Contract and payment of all obligations arising thereunder within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after receipt of the Intent to Award. The bond shall be executed by a surety company qualified and authorized to do business in the State of Arkansas and are listed on the current United States Department of the Treasury's listing of approved sureties. The bond shall be executed by a resident or non-resident agent licensed by the State Insurance Commissioner, to represent the surety company and the agent shall file with the bond the power of attorney of the agent to act on behalf of the bonding company. The bond shall be written in favor of the Owner. Contractor shall file the bond with the Circuit Clerk in the county where the Work is to be performed.

Failure to deliver said bonds, as specified, shall be considered as having abandoned the Contract and the bid security will be retained as liquidated damages. The bidder shall include in the bid the Performance and Payment bond amount so that the bid represents the total cost to the Owner of all work included in the contract.

9. **LISTING OF SUBCONTRACTORS.**

- 9.1 **LISTING OF SUBCONTRACTORS.** Name of principal Subcontractors or Prime Contractor (Mechanical {HVACR}, Plumbing, Electrical and Roofing) shall be listed where indicated on the Bid Form in accordance with Ark. Code Ann. § 22-9-204 and the contract documents. All prime contractors, as a condition to perform construction work for and in the State of Arkansas, shall use no other Subcontractors, including his own forces when the Subcontractor's portion of the project is \$50,000.00 or more, except those qualified and licensed by the Contractors Licensing Board in Mechanical (HVACR), Plumbing, Electrical and Roofing. Those principal Subcontractors or Prime Contractor listed in these spaces must be properly licensed for the listed work performed as determined by the Contractors Licensing Board (CLB). The bidder must also be properly licensed and use licensed Subcontractors for all other Work performed on or for the project that totals \$50,000 dollars or more as classified and determined by the CLB.

A bidder should request clarification from the Design Professional (or from DBA Construction Section, if no Design Professional exists for the project), if the bidder determines a type of work (mechanical – indicative of HVACR; electrical; plumbing; roofing) is a component of the project, but space has not been provided on the bid form for the listing of such, if the bid form lists a type of Work that is not a component of the project or if the bidder has any question on how to fill out the proposal with respect to the listing of subcontractors. Clarification should be made in accordance with Instruction 3.2.

- 9.1.1 The Prime Contractor must make a decision as to which (mechanical –indicative of HVACR; electrical; plumbing; roofing) subcontractor or his own forces he intends to use for each principal discipline of work. The prime contractor shall place the name(s) of each subcontractor or his own forces he intends to perform the Work in the space provided on the Bid Form and indicate whether the amount of the listed Work is \$50,000.00 or more. The prime contractor and/or the subcontractor listed on the bid form must be properly licensed by the Contractors Licensing Board (CLB) for any principal Work (mechanical –indicative of HVACR; electrical; plumbing; roofing), as well as any other proposed Work on the project.

If a Contractor or Subcontractor needs license classification guidance or wishes to verify classifications and/or licensees of subcontractors or their own forces they should contact the CLB prior to submitting the bid. If the bid form has a space for the prime contractor to list which subcontractor(s) or his own forces he intends to utilize to accomplish the disciplines of mechanical, electrical, plumbing, and/or roofing, the bidder must fill in the said blank space with the name of the contractor/subcontractor that will perform this work. Failure to complete the form correctly shall cause the bid to be declared non-responsive, and the bid will not receive consideration.

- 9.1.2 It shall be mandatory that any subcontractors listed on the Bid Form by the Prime Contractor are awarded a contract under Ark. Code Ann. § 22-9-204. Prime Contractors who submit a bid listing unlicensed subcontractors or use unlicensed subcontractors on a state project or any subcontractor not licensed by the Contractors Licensing Board who perform Work having a value of \$50,000.00 or more on a state project are subject to the Contractors Licensing Board.

9.2 License Requirement

a. No person shall perform Work on the contract without possessing the applicable Arkansas State License for the Work they are performing from the appropriate governing Boards. Apprentices will be appropriately supervised according to the State governing Boards requirements.

b. All licensed craftsman shall have a copy of their license with them and shall be required to provide it to a DBA or Owner Representative upon request.

- 9.3 Pursuant to Ark. Code Ann. § 22-9-404, the Bidder may require subcontractors to provide a Performance and Payment Bond to the Bidder when the Subcontractor is the selected for their portion of the Work. If the Contractor requires a Subcontractor to furnish a Performance and Payment Bond, the Subcontractor shall be entitled to payment of ninety-five (95) percent of the earned progress payments when due, with the Contractor retaining five (5) percent to assure faithful performance of the construction subcontract. Upon the approval of the Contractor, if the Subcontractor completes fifty (50) percent of the construction subcontract the Contractor shall not retain any further monies.

10. **SUBMITTAL.** Submit bid on the Bid Form in an opaque, sealed envelope. Identify the envelope with: the words "Bid Documents", project name and number, name of Bidder, and Arkansas Contractors License number, if required; only one bid shall be submitted per State Contractors license number. Submit bids in accordance with the Invitation to Bid. All blanks on the form shall be filled out in ink or be typewritten. Erroneous entries, alterations, and erasures shall be lined out, initialed by the Bidder, and the corrected entry inserted on the Bid Form. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.
11. **MODIFICATION, WITHDRAWAL AND SCRIVENERS' ERROR.**
 - 11.1 Modification and Withdrawal. Bidder may withdraw bid at any time before bid opening and may resubmit up to the date and time designated for receipt of bids. No bid may be withdrawn or modified after time has been called for the bid opening. Oral modifications to bids will not be considered. Bidder may submit written modifications to bid in writing, by hand delivery, by email: (dbaconst@arkansas.gov), or by facsimile fax: (501-682-5589) and must be received by DBA at any time prior to the expiration of the bidding time and date. All modifications shall be signed and no modification shall show the base bid amount. Modifications must be verifiable with bid original signature party.
 - 11.2 Scriveners' Error. Pursuant to Ark. Code Ann. § 19-4-1405 (e), bidders may request in writing to the DBA Director, to be relieved of their bid any time after the bid opening, but no later than 72 hours after receiving the intent to award, excluding Saturdays, Sundays and holidays. Scriveners' error is an error in the calculation of a bid which can be documented by clear and convincing written evidence and which can be clearly shown by objective evidence drawn from inspection of the original work papers, documents, or materials used in the preparation of the bid sought to be withdrawn; and the bid was submitted in good faith and the mistake was due to a calculation or clerical error, an inadvertent omission, or a typographical error as opposed to an error in judgment.
 - 11.2.1 Failure to make a timely request constitutes a waiver by the bidder of the bidder's right to claim that the mistake in his or her bid was a scriveners' error.
12. **DISQUALIFICATION OF BIDDERS.** The State shall have the right to disqualify bids (before or after opening), which includes but is not limited to, evidence of collusion with intent to defraud or other illegal practices upon the part of the Bidder, to reject a bid not accompanied by the required bid security or by other data required by the Contract Documents, or to reject a Bid which is in any way incomplete or irregular.
13. **APPLICABLE LAWS.**
 - 13.1 Labor. Contractors employed upon the work will be required to conform to the labor laws of the State of Arkansas and the various acts amendatory and supplementary thereto, and to all the laws, regulations, and legal requirements applicable thereto.

- 13.2 Discrimination. Bidder shall not discriminate against any employee, applicant for employment, or subcontractor as provided by law. Bidder shall be responsible for ensuring that all subcontractors comply with federal and state laws and regulations related to discrimination. Upon a final determination by a court or administrative body having proper jurisdiction that the Bidder has violated state or federal laws or regulations, the Owner or DBA, or both may impose a range for appropriate remedies up to and including termination of the Contract.
- 13.3 Taxes. Bidder shall include in the bid all state sales tax, social security taxes, state unemployment insurance, and all other items of like nature. It is the intent that the bid shall represent the total cost to the Owner of all work included in the contract. There are no provisions for a contractor to avoid taxes by using the tax exempt number of a state agency, board, commission or institutions. Said taxes shall be included in the bid price.
- 13.4 State licensing laws for Contractors shall be complied with.
- 13.5 Disclosure. Potential Bidders are hereby notified that any bidder who desires to enter into a contract not exempted from the disclosure requirements, that disclosure is a condition of the Contract and that the Owner cannot enter into any such contract, nor can DBA approve any such contract, for which disclosures are not made and the verbiage of paragraphs a, b, and c below will be included in the body of any contract awarded.

Potential Bidders are hereby notified that:

a. Disclosure is required to be a condition of any present or future subcontract for which the total consideration is greater than twenty-five thousand dollars (\$25,000.00).

b. The Contractor shall require any present or future Subcontractor, for which the subcontract amount is greater than \$25,000.00 to complete and sign the Contract and Grant Disclosure and Certification form. The Contractor shall ensure that any agreement, current or future between the Contractor and a Subcontractor for which the total consideration is greater than \$25,000.00 shall contain the following:

Failure to make any disclosure required by Governor Executive Order 98-04, or any violation of any rule, regulation or adopted pursuant to that Order shall be material breach of the term of this subcontract. The party who fails to make the required disclosure or who violates the rule, regulation, or policy shall be subject to all legal remedies available to the contractor.

c. The Contractor shall transmit a copy of the Subcontractor's disclosure form to the agency and a statement containing the dollar amount of the subcontract within ten (10) days upon receipt of subcontractor's disclosure.

Note: A copy of the "Contract and Grant Disclosure and Certification Form" DBA 00 73 73 is included within the division zero documents.

- 13.5 The bidding, award and administration of the contract shall be made pursuant to Ark. Code Ann. §19-4-1401 et seq., Ark. Code Ann. § 22-9-101 et seq., Ark. Code Ann. § 22-2-101 et seq. and the Minimum Standards and Criteria. The interpretation and intent of these laws and rules take precedence in the event of any conflict with the bid or contract documents, or both. Clarification should be made in accordance with Instruction 3.2.

- 13.6 Pursuant to Ark. Code Ann. §19-60-105, no state agency may enter into or renew a public contract for services with a Contractor who knows that the Contractor or a Subcontractor employs or contracts with an illegal immigrant to perform work under the contract.

Before executing a public contract, each prospective contractor shall certify in a manner that does not violate federal law in existence on January 1, 2007, that the Contractor at the time of the certification does not employ or contract with an illegal immigrant. Online certification shall be made at: <https://www.ark.org/dfa/immigrant/index.php/user/welcome> and by completing the "Certifications for Contracting with the State of Arkansas" form included in section 00 45 00.

If a Contractor violates this section, the Owner shall require the Contractor to remedy the violation within sixty (60) days. Failure to remedy the violation within the sixty (60) days as required by law, the Owner shall terminate the contract for breach of the contract and the Contractor shall be liable to the Owner for actual damages.

If a Contractor uses a Subcontractor at the time of certification, the Subcontractor shall certify in a manner that does not violate federal law in existence on January 1, 2007, that the Subcontractor at that time of certification does not employ or contract with an illegal immigrant. Subcontractors shall submit the certification required to the Contractor within thirty (30) days after the execution of the subcontract. The Contractor shall maintain on file the certification of the Subcontractor throughout the duration of the term of the contract. If the Contractor learns that a Subcontractor is in violation of this section, the Contractor may terminate the contract with the Subcontractor, and the termination of the contract for a violation of this section shall not be considered a breach of the contract by the Contractor and Subcontractor. Contractor agrees the Owner's Representative or DBA shall have the right to request the Contractor's records of Subcontractors illegal immigrant disclosure statements during the course of the project.

- 13.7 Pursuant to Ark. Code Ann. §25-1-501 (Act 710 of 2017), state agencies shall not enter into contracts with companies for construction work unless the contract includes a written certification from the company or person that the company or person is not currently engaged in a boycott of Israel and agrees for the duration of the contract not to engage in a boycott of Israel.

Each prospective contractor shall certify by signing the "Certifications for Contracting with the State of Arkansas" form. This certification shall be submitted as one of the bid submission documents. The Contract shall not be approved until the certification is completed and provided with the other bid documents necessary for contract approval. If a Contractor violates this section, the Owner shall require the Contractor to remedy the violation within thirty (30) days. Failure to remedy the violation, shall constitute a breach of the contract and the Contractor shall be liable to the Owner for actual damages.

13.8 Pursuant to Ark. Code Ann. §22-9-105 (Act 422 of 2019) , contractors who have been determined by a State Agency to be on the "Prohibited Bidders List" may not bid on state projects. Bidders should review Section 3-324 of the Building Authority Minimum Standards and Criteria for more information. Contractors who are determined to be prohibited from bidding due to material issues on state contracts may not be awarded state capital improvement contracts until the state agency has determined the material issue is no longer of concern or the contract has been terminated or closed out, whichever is sooner. However, the contractor's ineligible bidding status shall not exceed more than three (3) years.

13.9 Pursuant to Ark. Code Ann. §25-1-1102 (Act 611 of 2023), state agencies shall not enter into contracts with companies for construction work unless the contract includes a written certification from the company or person that the company or person is not currently engaged in a boycott of energy, fossil fuel, firearms, and ammunition industries and agrees for the duration of the contract not to engage in a boycott of these industries.

Each prospective contractor shall certify by signing the "Certifications for Contracting with the State of Arkansas" form. This certification shall be submitted as one of the bid submission documents. The Contract shall not be approved until the certification is completed and provided with the other bid documents necessary for contract approval.

13.10 Pursuant to Ark. Code Ann. §25-1-1203 (Act 758 of 2023), state agencies shall not enter into contracts with scrutinized companies or that employs scrutinized companies as a subcontractor for construction work unless the contract includes a written certification from the company is not a scrutinized company. State agencies shall require a company that submits a bid or proposal for a contract for goods and services to certify that the company is not a scrutinized company.

Note: A copy of the "Certifications for Contracting with the State of Arkansas" is included in section 00 45 00.

14. **LIQUIDATED DAMAGES.** The amount of liquidated damages to be assessed shall be in accordance with the amount indicated in the Contract. Bidder understands and agrees that under the terms of the Contract to be awarded, if the Contractor fails to complete the work within the time limit specified in the Contract, the Contractor shall pay the Owner as Liquidated Damages, and not in the nature of a penalty the sum specified in the Bid Form for each day completion is delayed. It is further understood and agreed by bidder that the said sum fixed as Liquidated Damages is a reasonable sum considering the damages that Owner will sustain in the event of any delay in completion of the Work, and said sum is herein agreed upon and fixed as Liquidated Damages because of difficulty in ascertaining the exact amount of damages that may be sustained by such delay.

15. **PREBID CONFERENCE.** See Section 00 11 16 – Invitation to Bid

16. **OPENING.** Bids will be opened as identified in the Invitation to Bid.

17. EVALUATION AND CONSIDERATION OF BIDS.

- 17.1 It is the intent of the State to award a Contract to the lowest responsive qualified Bidder provided the bid has been submitted in accordance with the requirements of the Contract Documents and does not exceed the funds certified for the project by more than 25%. The State shall have the right to waive any formalities in a bid received and to accept the bid which, in the State's judgment, is in its best interests and upon approval of DBA. The State shall have the right to accept any or all bids for a period not to exceed the time frame as stated in 6(d) of Section 00 41 13 Bid Form.
- 17.2 Tie Bids. If two or more sealed bids are equal in amount, meet Bidding Document requirements, and are the lowest received by the time of the bid opening, then the apparent low bidder will be determined by lot (placing the name of the tie bidders into a container and drawing one name). The drawing will be conducted by DBA personnel and another person so designated by DBA in the presence of a witness and the tie bidders or representatives. The witness shall be an employee of the State of Arkansas. Documentation of the drawing shall be included on the bid tabulation and be signed by those present. Nothing in the above and foregoing will diminish the State's reserved right to reject any and all bids and to waive any formalities.

18. EXECUTION OF CONTRACT.

- 18.1 The apparent low Bidder shall be prepared, if so required by the Owner, to present evidence of experience, qualifications, and financial ability to carry out the terms of the Contract.
- 18.2 The successful Bidder will be required to execute an Agreement with the Owner on a form identical to the Agreement Form included with the Contract Documents and the Performance and Payment Bond and Certification of Insurance and a copy of the policies showing all endorsement, exclusions within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after receipt of the Intent to Award. Failure of the Bidder to do so may result in the Bidder being rejected and could result in disqualification and forfeiture of bid bond. The Owners notice to proceed shall not be issued until the insurance certificates and coverage have been reviewed and approved by the Owner. The successful Contractor will commence work within five (5) days of the start date listed on the notice proceed issued by the owner or DBA.
- 18.3 The successful Bidder will be required to furnish Owner with proof of insurance, as prescribed by the General Conditions and Supplementary General Conditions.

END OF DOCUMENT

BID FORM
Section 00 41 13 / Rev: August 2025

Bid Date: Wednesday, October 28, 2026
Bid Time: 2:00 p.m.
Bid Opening Location: Division of Building Authority,
501 Woodlane St. Suite 101N,
Little Rock, Arkansas 72201

Bid To: Office of State Technology

Bid From: _____

DBA Project Number: 4702501RLF

Project Name: State Data Center West UPS Replacement

- 1) Having carefully examined the Contract Documents for this project, as well as the premises and all conditions affecting the proposed construction, the undersigned proposes to provide all labor, materials, services, and equipment necessary for, or incidental to, the construction of the project in accordance with the Contract Documents within the time set forth, for the lump sum base bid of:

\$ _____
Dollar Amount Is To Be Shown Numerically

- 2) Allowances:
Not Required

- 3) Unit Prices:
Not Required

- 4) Trench or
Excavation
Safety: Not
Required

\$ _____
Dollar Amount Is To Be Shown Numerically

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

- 5) Completion Date: The Bidder agrees that the work will be complete in accordance with the contract documents and ready for Substantial Completion:

Number of Calendar Days: 180

On or Before Date: N/A

- 6) The undersigned, in compliance with the Contract Documents for the construction of the above named project, does hereby declare:

- a. That the undersigned understands that the State reserves the right to reject any and all bids and to waive any formality.

- b. That if awarded the Contract, the undersigned will enter into an Agreement, on a form identical to the form included in the Contract Documents and execute required performance and payment bonds and proof of insurance within ten (10) days after receipt of the Intent to Award, will commence work within five (5) days after the start date of the Notice to Proceed, and will complete the Contract fully by Completion Date indicated. Should the undersigned fail to fully complete the work within the above stated time, he shall pay the Owner as fixed, agreed and liquidated damages and not as a penalty, the sum of:

Dollar amount of liquidated damages per day: \$500 until work is completed or accepted.

- c. The undersigned further agrees that the bid security payable to Owner and accompanying this proposal shall become the property of the Owner as liquidated damages if the undersigned fails to execute the Contract or to deliver the required bonds and proof of insurance to the Owner within the time frame as stated in paragraph 6 (b) from receipt of the Intent to Award as these acts constitute a breach of the Contractor's duties.

- d. That this bid may not be withdrawn for a period of: 30 calendar days after the bid opening.

- e. The undersigned understands that the Owner's intent is to construct all facilities proposed within the limits established by the funds appropriated for the project.

- f. The names of subcontractors and the nature of the work to be performed by each one have been included on the Bid Form.

- g. The following prevailing wage rates will apply:

The undersigned agrees to pay all prevailing hourly wages prescribed and mandated by the Davis-Bacon Wage Rates and any other applicable federal regulations.

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

h. Bids submitted by a "Joint Venture/Joint Adventure" shall be signed by representatives of each component part of the Joint Venture/Joint Adventure. The licenses of each component part of the Joint Adventure should also be listed in the bid submittal. Therefore, Joint Adventure bidders shall indicate at least two (2) signatures and should indicate two (2) licenses numbers on the Bid Form. Exception: Joint Ventures who have been properly licensed with the Arkansas Contractors Licensing Board as a "Joint Venture" need only to indicate the Joint Venture license number on the Bid Form. Joint Venture Bidders shall indicate at least two (2) signatures on the bid form even if they are licensed as a Joint Venture.

7) The following document(s) is attached to and made a condition of this bid.

- a. Bid Security
- b. Certifications for Contracting with the State of Arkansas

8) The undersigned acknowledges receipt of and inclusion as a part of the Contract Documents the following addenda(s):

#:	_____	Dated:	_____
#:	_____	Dated:	_____
#:	_____	Dated:	_____
#:	_____	Dated:	_____
#:	_____	Dated:	_____
#:	_____	Dated:	_____
#:	_____	Dated:	_____

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

- 9) Listing of Mechanical, Plumbing, Electrical, and Roofing Subcontractors or the Prime Contractor if the portion of work will be performed with your own forces.

Important Please Note

Indicate the name(s) of each entity performing the listed work below and answer the follow-up question. All Mechanical, Plumbing, Electrical, and Roofing Subcontractors or your own forces if applicable shall be listed regardless of qualifications, licensures or work amount. Bidders should consult the project manual on how to fill out this form. Failure to name the subcontractor or prime contractor in the space provided shall cause the bid to be declared non-responsive and the bid will not receive consideration.

Mechanical:

Required

- Is the amount of Mechanical Work \$50,000 or more? Yes _____ No _____
- Is the above listed subcontractor or prime contractor performing any other Work on the project? Yes _____ No _____ --- If yes, list the Work and the cost of all Work:

Plumbing:

Not Required

Electrical:

Required

- Is the amount of Electrical Work \$50,000 or more? Yes _____ No _____ -
Is the above listed subcontractor or prime contractor performing any other Work on the project? Yes _____ No _____ --- If yes, list the Work and the cost of all Work:

Roofing:

Not Required

Important Notice: If the Bid Form notes any or all of the above Subcontractor's (Mechanical (HVACR), Electrical, Plumbing, and/or Roofing) as "**Required**", you must list a subcontractor or list your own forces as applicable or your bid will be declared non-responsive.

Bid Form Signature Page

Project Name: State Data Center West UPS Replacement

Project #: 4702501RLF

Please Complete the Appropriate Section (Complete Only One)

☐ **Individual Entity of Company**

Legal Name of the Entity or Company Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

☐ **Corporation (Must Include with bid a copy of the authorized officer's authority to sign)**

By: _____
Signed With Legal Name of the Corporation State of Incorporation Contractor License Number

By: _____
Signature of Authorized Officer of the Corporation Date

Print Name Email Phone Number

Street Address City State Zip Code

☐ **Joint Venture or Adventure**

1st Entity or Company (*legal Name*) Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

2nd Entity or Company (*legal Name*) Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

Bid Bond
Section 00 43 13 / Rev: August 2025

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal,
and, _____, as Surety, a
corporation duly organized under the laws of _____, and who is
qualified and authorized to do business in the State of Arkansas and is listed on the current
United States Department of the Treasury's listing of approved sureties, and held and firmly bound
unto _____ Office of State Technology _____, the State
of Arkansas and entities thereof as Obligee (owner/agency), in the sum of five (5) percent of the
amount of the bid and for payment of which in lawful money of the United States, well and truly to be
made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and
severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, Principal has
submitted a Bid for the work on Division of Building Authority Project number/name: 4702501RLF
State Data Center West UPS Replacement

NOW, THEREFORE, if Principal is not released from his bid as defined in the Bidding
Documents and, if selected as the apparent lowest responsible Bidder, Principal shall, within the time
period specified in the Bidding Documents, do the following:

- (1) Enter into a written agreement in accordance with the Bid Document.
- (2) File a performance and payment bond, which guarantees faithful performance and
payment for labor and materials as required by the Bid Documents, in the County where
the work is to be performed and provide said bond to the obligee.
- (3) Furnish certificates of insurance and all other items as required by the Bidding
Documents.

In the event of the disqualification of said Bid due to failure of Principal to enter into such agreement and furnish such bonds, certificates of insurance, and all other items as required by the bidding documents, Principal and Surety shall pay obligee the damage, loss, cost, and expenses subject to the amount of the bid security directly arising out of the Principal's default in failing to execute and deliver the contract and the performance/payment bond. Liability shall be limited to five (5) percent of the amount of the bid.

This bid bond is given in accordance with Arkansas laws and regulations, including Arkansas Code Ann. §19-4-1405, §22-9-203 and §22-9-402. This bid bond is binding upon the above named parties, and their successors, heirs, assigns and personal representatives. Executed by the parties who individually represent that each voluntarily enters into and has the authority to enter into this agreement.

IN WITNESS WHEREOF, we have hereunto set our hands this _____ day of _____, 20____.

Principal Company Name: _____

Contractor Name: _____

Signature*: _____

Title: _____

Surety Name: _____

Surety NAIC Number: _____

Resident/Non-Resident Agent Name: _____

Signature: _____

License Number*: _____

*** Bids shall be rejected if a proper bid bond/power of attorney is not submitted. Bid Bonds must be executed by a resident/non-resident agent licensed by the Arkansas Insurance Commissioner to represent the surety which have qualified and are authorized to do business in Arkansas and is listed on the current United States Department of the Treasury's listing of approved sureties. The Power of Attorney of the agent to act on behalf of the surety shall be submitted with this Bid Bond.**

CERTIFICATIONS FOR CONTRACTING WITH THE STATE OF ARKANSAS

Section 00 45 00 / Rev: August 2025

DBA Project Number: 4702501RLF

Project Name: State Data Center West UPS Replacement

Pursuant to Arkansas law, a Contractor must submit the below certifications prior to entering into a contract with a public entity for an amount as designated by the applicable laws.

- 1) **Israel Boycott Restriction:** For contracts valued at \$1,000 or greater.

A public entity shall not contract with a person or company (the "Contractor") unless the Contractor certifies in writing that the Contractor is not currently engaged in a boycott of Israel. If at any time after signing this certification the Contractor decides to boycott Israel, the Contractor must notify the contracting public entity in writing. See Arkansas Code Annotated § 25-1-503.

- 2) **Illegal Immigrant Restriction:** For contracts valued at \$25,000 or greater.

No state agency may contract for services with a Contractor who knowingly employs or contracts with an illegal immigrant. The Contractor shall certify that it does not knowingly employ, or contract with, illegal immigrants. See Arkansas Code Annotated § 19-60-105.

- 3) **Energy, Fossil Fuel, Firearms, and Ammunition Industries Boycott Restriction:** For contracts valued at \$75,000 or greater.

A public entity shall not contract unless the contract includes a written certification that the Contractor is not currently engaged in and agrees not to engage in, a boycott of an Energy, Fossil Fuel, Firearms, or Ammunition Industry for the duration of the contract. See Arkansas Code Annotated § 25-1-1102.

- 4) **Scrutinized Company Restriction:** (Required with bid or proposal submission.)

A state agency shall not contract with a Scrutinized Company or a company that employs a Scrutinized Company as a subcontractor. A Scrutinized Company is a company owned in whole or with a majority ownership by the government of the People's Republic of China. A state agency shall require a company that submits a bid or proposal for a contract to certify that it is not a Scrutinized Company and does not employ a Scrutinized Company as a Scrutinized Company as a subcontractor. See Arkansas Code Annotated § 25-1-1203.

By signing this form, the Contractor agrees and certifies they are not a Scrutinized Company and they do not currently and shall not for the aggregate term of any resultant contract:

~ Boycott Israel

~ Knowingly employ or contract with illegal immigrants.

~ Boycott Energy, Fossil Fuel, Firearms, or Ammunition Industries.

~ Employ a Scrutinized Company as a subcontractor.

Office of State Technology

Name of Public Entity

Print Name of Company

AASIS Vendor Number

Contractor Signature and Date

Print Name and Title

"Public entity" means the State of Arkansas, or a political subdivision of the state, including all boards, commissions, agencies, institutions, authorities, and bodies politic and corporate of the state, created by or in accordance with state law or rules, and does include colleges, universities, a statewide public employee retirement system, and institutions in Arkansas as well as units of local and municipal government.

AGREEMENT FORM
Section 00 52 13 / Rev: August 2025

THIS AGREEMENT entered into this _____ by and between
_____ hereinafter referred to as the Contractor,
and _____ Office of State Technology hereinafter referred to as the Owner,
and the Department of Transformation and Shared Services, Division of Building Authority (DBA),

WITNESSETH:

- 1) That for and in consideration of the payment by the Owner in the amount of \$ _____ -
to be made as set forth in the Contract Documents, the Contractor hereby agrees to furnish
all tools, labor, equipment, and materials, and to build and construct that certain project in
Pulaski County, designated as

Project # : 4702501RLF

Project Name: State Data Center West UPS Replacement

consisting of construction, more specifically described in the Contract Documents attached hereto and incorporated herein by reference. Contract Documents include the following: the Agreement Form (this instrument); the Invitation to Bid; Instruction to Bidders; Bid Form; all Addenda; Performance and Payment Bond; General and Supplementary Conditions; Drawings and Specifications, Drawings listed in the Specifications; Notice to Proceed; Negotiated Changes Documents; and Change Orders. All capital improvements shall be in exact accord with the Contract Documents filed with the Construction Section Office, Division of Building Authority, located in Little Rock, Arkansas, on:

Wednesday, October 28, 2026

The Division of Building Authority (DBA) Construction Section shall have direct contract supervision. Said capital improvements shall be to the satisfaction of the DBA Construction Section, and in accordance with the laws of the State of Arkansas, and the work shall be subject to inspection and approval at all times by the appropriate state and federal agencies.

- 2) Owner may at any time during the progress of the work alter, change, subtract from, or add to said Contract Documents without violating this Agreement or the terms thereof. Said changes, alterations, subtractions, or additions shall be set forth in writing in a document referred to as a "Change Order". Said document shall not be effective unless approved by the DBA. Once effective, the Change Order shall be attached hereto and incorporated herein by reference and shall be made a condition or term of the Contract Documents. Nothing contained in the Change Order shall be construed to waive the sovereign immunity of the State or entities thereof.

- 3) The Contractor agrees, for the consideration set forth in the Bid Form, to begin work within the time frame stated in 6 (b) of Section 00 41 13 Bid Form after a Notice to Proceed is issued and to complete the work:

In: 180 Calendar Days

On or Before: N/A

If the Contractor fails to complete the work within the time limit herein specified, he shall pay to the Owner, as liquidated damages and not in the nature of a penalty, the sum specified in the Bid Form of for each calendar day delayed, it being understood and agreed between the parties hereto that the said sum fixed as liquidated damages is a reasonable sum, considering the Owner will sustain in the event of any such delay, and said amount is herein agreed upon and fixed as liquidated damages because of difficulty of ascertaining the exact amount of damages that may be sustained by such delay. The said sum shall be deducted from the amount of the contract.

- 4) Should Contractor be delayed in the execution or completion of the Work by the act, neglect or default of the State, or by any damage by fire, weather conditions or other casualty or event for which the Contractor is not responsible, or by general strikes or lockouts caused by acts of employees, then any extended period shall be determined and fixed by the Owner with approval given by DBA Construction Section. Said extended period shall be the time for a period equivalent to the time lost by reason of any or all of the causes aforesaid, but no such allowance shall be made unless a claim therefore is presented in writing to the Owner or DBA Construction Section within seven calendar days of the occurrence of the event causing the delay.
- 5) It is mutually agreed between the parties that in the performance of this contract, Contractor is acting independently and in no sense as Agent of the State. Contractor shall not let, assign, or transfer this contract or any interest therein, without the written consent of the Owner and DBA.
- 6) It is agreed and understood between the parties hereto that the Contractor shall accept and the Owner will pay for the Work, at the prices stipulated in the Contract Documents, such payment to be in the form of legal tender, and the payment shall be made at the time and in the manner set forth in the Contract Documents.
- 7) Any laborer or mechanic employed by the Contractor or any Subcontractors for this project, directly on site for the Work covered by the Contract Documents, shall be paid a rate of wages required by the Contract Documents, if required. If the Owner or DBA, or both discovers that wages less than the rate of wages specified by the Contract Documents have been or are being paid, then the Owner or DBA, after giving written notice to the Contractor, will terminate the Contractor's right to proceed with the project Work or such part of the Work as to which there has been a failure to pay the required wages and to prosecute the Work to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any excess costs occasioned thereby.

- 8) Contractor shall promptly repair, at his own expense and to the satisfaction of the Owner and DBA Construction Section, damage done by him or his employees or agents at the work site, or to the public property or buildings, or both, and will save the State harmless from all claims of any person for injury to person or to property occasioned by his act, or the acts of his employees or agents, while in the execution of the work specified.
- 9) The Owner or DBA, or both may terminate this agreement to the extent Owner's funds are no longer available for expenditures under this agreement.
- 10) Failure to make any disclosure required by Governor's Executive order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the Agency.
 - a) The Contractor shall prior to entering any agreement with any subcontractor, for which the total consideration is greater than \$25,000.00, require the subcontractor to complete a Contract and Grant Disclosure and Certification Form. The Contractor shall ensure that any agreement, current or future between the contractor and a subcontractor for which the total consideration is greater than \$25,000.00 shall contain the following:

Failure to make any disclosure required by Governor Executive Order 98-04, or any violation of any rule, regulation or adopted pursuant to that Order, shall be a material breach of the term of this subcontract. The party who fails to make the required disclosure or who violates the rule, regulation, or policy shall be subject to all legal remedies available to the Contractor.
 - b) The Contractor shall, within ten days of entering into any agreement with a subcontractor, transmit to Division of Building Authority; a copy of the Contract and Grant Disclosure and Certification Form (00 73 73) completed and signed by the subcontractor and a statement containing the dollar amount of the subcontractor.
 - c) The terms and conditions regarding the failure to disclose and conditions which constitutes material breach of contract and rights of termination and remedies under the Executive Order 98-04 are hereby incorporated within.
- 11) Nothing in this Contract shall be construed to waive the sovereign immunity of the STATE OF ARKANSAS or any entities there of.

Executed by the parties who individually represent that each have the authority to enter into this Contract.

Project # : 4702501RLF

Project Name: State Data Center West UPS Replacement

Contractor: Legal Name of the Entity or Company

Signature of Authorized Officer of the Company

Date

Print Name

Title

Email Address

Street Address

City

State

Zip Code

Office of State Technology

Owner: Agency Name

Signature of Authorized Officer of the Agency

Date

Print Name

Title

Email Address

501 Woodlane St., Ste 311 Little Rock, AR 72201

Street Address

City

State

Zip Code

Approved: Shared Administrative Services, Division of Building Authority

By: _____

Date: _____

Title

PERFORMANCE AND PAYMENT BOND
Section 00 61 13 / Rev: August 2025

1) We _____, (Principal), and
_____, (Surety), are held and firmly bound, jointly
and severally, unto _____ Office of State Technology _____, as Oblige (Owner),
in the initial Contract amount of \$ _____ - said amount to be deemed a Performance
Bond payable to Owner and in the separate amount of \$ _____ - said amount to be
deemed a Payment Bond payable to proper claimants such amounts subject to the terms of this
Performance Bond and Payment Bond Agreement. The Principal and Surety state that the Surety
is a solvent corporate surety company authorized to do business in the State of Arkansas and is
listed on the current United States Department of Treasury's listing of approved sureties.

Principal has by written agreement dated _____ entered into a capital
improvement contract (Contract) with the Owner for:

State Data Center West UPS Replacement

Project # 4702501RLF .The above referenced Contract is incorporated herein by reference.

2) Under this Performance Bond and Payment Bond Agreement, the Principal and Surety shall be
responsible for the following:

a. Performance Bond

- i. The Principal shall faithfully perform the above referenced Contract, which is incorporated
herein by reference.
- ii. In the event that the Principal defaults in its performance of its obligations under the
Contract, the Principal and the Surety, jointly and severally, shall indemnify and save
harmless the Owner from all cost and damage which the Owner may suffer by reason of
Principal's failure to perform the Contract. Said indemnification shall include, but not be
limited to, full reimbursement and repayment to the Owner for all outlays and expenses
which the Owner may incur in making good any such default of the Contract by the
Principal.

b. Payment Bond

- i. Principal shall pay all persons all indebtedness for labor or material furnished or
performed under the Contract and in doing so this obligation shall be null and void.

- ii. In the event that Principal fails to pay for such indebtedness, such persons shall have a direct right of action against the Principal and Surety, jointly and severally, under this obligation, subject to the Owner's priority.

3) This Performance Bond and Payment Bond is given in accordance with Arkansas laws and rules, including Ark. Code Ann. § 18-44-501 et seq., §19-4-1401 et seq., and § 22-9-401 et seq. The Surety guarantees that the Principal shall comply with Ark. Code Ann. § 22-9-301 et seq. by payment and full compliance with all prevailing hourly wage contract provisions where the contract amount exceeds the amount provided by law.

Any changes made in the terms of the Contract, including but not limited to, the amount of the Contract, or in the work to be performed pursuant to the Contract or the giving by the Owner of any extension of time for the performance of the Contract, or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety or Sureties or either or any of them, their heirs, personal representatives, successors or assigns from their liability hereunder, notice to and consent of the Surety or Sureties of any such change, extension or forbearance being are hereby voluntarily waived. In no event shall the aggregate liability of the Surety exceed the greater amount of the Contract, including DBA approved change orders.

This Performance Bond and Payment Bond Agreement is binding upon the above named parties, and their successors, heirs, assigns and personal representatives.

Executed by the parties who individually represent that each voluntarily enters into and has the authority to enter into this agreement.

By: _____
Contractor's (Principal) Signature Date

By: _____
Arkansas Resident Agent or Non-Resident Agent Signature (attach Power of Attorney) Date

Agent's License Number

Surety Company's NAIC Number

Print Agent's Name

Date

Street Address

City

County

State

Zip Code

Business Phone Number

Email Address

CHANGE ORDER #SAMPLE ONLY

DBA Project # 4702501RLF

Agency: SAS / Division of Building Authority

Project Name: STATE DATA CENTER WEST UPS REPLACEMENT

The undersigned entities below state that they have the authority and consent to enter into this Change Order, and further agree that the changes below and any attachments hereto shall be incorporated into the above referenced Contract.

Furthermore, "I, the undersigned contractor, do hereby certify that I have reviewed my files and declare that there ☐ **are** / ☐ **are not (check one)** new or additional subcontractors and sub-subcontractors which are required to be disclosed under this contract pursuant to the governor's executive order 98-04. I have attached to this change order those disclosures required under the order. I understand that any false information provided by or omission made by me, may be grounds for termination due to a material breach."

Per the Contract's General Conditions Article 4.2.5 the method of payment for the change in Work is: {please check applicable box(s)}

- ☐ Unit prices or combination of unit prices which formed the basis of the original contract.
- ☐ A lump sum fee based on the Contractor's estimate, approved by the Design Professional and accepted by the owner.
- ☐ The applicable methods of computation as set forth in the General Conditions Article 7.2.2.3.

The following fields are used to summarize the Owner's justification for the change order. Documentation supporting this change order must be attached. The documentation shall include but not be limited to the Design Professional's drawing(s), and/or specification change(s); request(s) for information (RFI) and pricing; the General Contractor's RFI response(s); and cost breakdown, material, placing cost's, tax and bond premiums. Fill in the applicable areas to include the cost for each. Change orders submitted with inadequate or no justification will be return to the Owner or the Owner's Representative.

☐ **a) Owner Requested** Cost \$

Justification:

☐ **b) Unforeseen Condition** Cost

Justification:

☐ **c) Item Not Shown or Specified** Cost

Justification:

☐ **d) Substitution/Alternative Method** Cost

Justification:

☐ e) Code / Regulation / Rule

Cost

Justification:

☐ f) Time Extension

Justification:

**Total change order cost (a) through (e) above:
\$ (this amount must match item four "4" below)**

Status of Work: ☐ On-Going ☐ On-Hold

1. The original contract sum was:	\$
2. The net change by previous Change Order was:	\$
3. The contract sum prior to this Change Order was:	\$
4. The contract sum will be ☐ INCREASED ☐ DECREASED ☐ UNCHANGED (check one) by this Change Order:	\$
5. The new contract sum, which includes this Change Order, shall be:	\$
6. The contract time will be ☐ INCREASED ☐ DECREASED ☐ UNCHANGED (check one) # of days	
7. The date (or dates for phased project) of contract substantial completion shall be:	

DESIGN PROFESSIONAL:

CONTRACTOR:

Signature _____ Date _____

Signature _____ Date _____

Print Name/Firm _____

Print Name/Firm _____

Address _____

Address _____

Email: _____

Email: _____

AGENCY:

Signature _____ Title _____ Date _____

Address _____ Email _____

APPROVED BY ABA CONSTRUCTION:

Signature _____ Title _____ Date _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

Section 00 65 16 / Rev: August 2025

Project Name: State Data Center West UPS Replacement

DBA Project Number: 4702501R Owner/Agency: Office of State Technology

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION:

The Date of Substantial Completion of the Work, or designated portion thereof, is the date certified by the Design Professional and approved by the Owner and DBA when the Work is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents. Check the appropriate box below to denote a full or partial substantial completion.

☐ **PARTIAL SUBSTANTIAL COMPLETION**

The partial substantial completion includes the following area(s):

The Work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion for the above portion(s) of the Project is hereby established as: _____, which is the date of commencement of applicable warranties required by the Contract Documents, and assumption by the Owner of responsibility for maintenance, security, heat, utilities, damage to the Work and insurance excepting as stated below.

☐ **FULL SUBSTANTIAL COMPLETION**

The Work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion for the Project is hereby established as: _____, which is the date of commencement of applicable warranties required by the Contract Documents, and assumption by the Owner of responsibility for maintenance, security, heat, utilities, damage to the Work and insurance excepting as stated below.

The responsibilities of the Owner and the Contractor shall be as follows: (Note - Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage; Contractor shall secure consent of the Surety Company, if any.)

A list of punch list items to be completed or corrected, prepared by the Contractor and verified and amended by the Architect/Engineer is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list will be the date of final completion and inspection/acceptance by the Architect/Engineer, Owner and DBA.

In the case of a full substantial completion the Owner and Contractor understand and agree that all items listed on the attached punch list must be completed within 30 calendar days from the date of substantial completion. Failure to complete the punch list items within the above referenced timeframe may result in notification to and request for action of the Surety Company's Performance and Payment Bond.

Certification of Design Professional:

Firm Name: Pettit and Pettit Consulting Engineers

Address: 201 E. Markham St.

Little Rock, Ar, 72201

Signature

Title

Date

Approval of Contractor:

Company Name: _____

Address: _____

Signature

Title

Date

Approval of Owner-Agency:

Agency Name: Office of State Technology

Address: 501 Woodlane St., Ste 311

Little Rock, AR 72201

Signature

Title

Date

Approval of Shared Administrative Services, Division of Building Authority:

Signature

Title

Date

Cc: Surety Company

Certificate of Final Completion – Capital Improvement Project

Section 00 65 19 / Rev: August 2025

DBA Project Number: 4702501RLF Project Name: State Data Center West UPS

We, the undersigned parties, state: Replacement

- 1) The date of final completion for the above referenced project is herein established as: _____
Pursuant to Arkansas Code Annotated §22-9-604, retainage shall be released within thirty (30) days of the final completion date. The establishment of the final completion date shall not be deemed to relieve the Contractor of its obligation contained in the contract documents including but not limited to providing all close out documents for final payment.
- 2) All known details of the project are resolved and there is no uncompleted work left, no Contractor claims or outstanding progress payment(s).
- 3) The project punch list items, excluding warranty work is complete.
- 4) The substantial completion certificate previously executed established the twelve (12) month warranty period for projects and a twenty four (24) month warranty for roofing projects, or both. Sixty (60) days prior to the warranty expiration the parties listed below shall conduct a final warranty inspection; this report will be delivered to the Contractor who will correct all defects identified in the Design Professionals or Owners follow-up inspection reports.

Contractor:

Contractor Company/Corporation Name

By: Contractor Authorized Representative

Print Name Date

State Agency, Board & Commission:

Office of State Technology

Owner/Agency Name

By: Agency Authorized Representative

Print Name Date

Design Professional:

Pettit and Pettit Consulting Engineers

Design Professional Firm Name

By: Design Professional Authorized Representative

Print Name Date

Division of Building Authority

By: DBA Observer or Authorized Representative

Print Name Date

Consent of Surety
Section 00 65 19.19 / Rev: August 2025

Comes the undersigned, who does hereby swear and affirm that:

1. My name is _____ and I am an authorized
representative of _____ a surety company.

2. With regards to the Project State Data Center West UPS Replacement

DBA Project # 4702501RLF ; Contract Date _____

Contractor, and the Project Owner

Office of State Technology _____; I hereby approve the final payment to the Contractor. I agree that the final payment to the Contractor shall not relieve the Surety Company of any of its obligation as set forth in the contract with the State of Arkansas and this Contractor.

AFFIANT SIGNATURE

DATE _____

VERIFICATION

STATE OF ARKANSAS >
 >

COUNTY OF: _____
Subscribed and Sworn To before me this _____ *day of* _____ 20____

Notary Public

My Commission Expires: _____.

Division of Building Authority
General Conditions
Section 00 72 13 / Rev: August 2025

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End of TOC

ARTICLE 1 -- GENERAL PROVISIONS

1.1 DEFINITIONS

- 1.1.1 Contract Documents: Contract Documents consist of Agreement; Invitation to Bid; Instruction to Bidders; the Bid Form; the Bid and the Performance and Payment Bonds; General and Supplementary Conditions; Specifications; Drawings; Addenda issued prior to execution of the Contract; Front End Documents; all DBA approved Change Orders; Wage Rate Determinations (if required); other documents listed or referred to in the Agreement; and modifications issued after execution of the Contract and signed by Contractor and Owner, and approved by DBA.
- 1.1.2 Contract: The Contract Documents form the Contract for construction. The Contract Documents will not be construed to create a contractual relationship between the Design Professional and Contractor, between the Owner and a Subcontractor, between the Owner and Design Professional, or between entities other than the Owner and Contractor; however, a contractual relationship does exist between the Contractor and the agency referred to as Owner, and DBA for approval purposes.
- 1.1.3 Work: Construction and services required by the Contract Documents whether completed or partially completed, include tools, labor, equipment, supplies, transportation, handling, and incidentals provided by the Contractor.
- 1.1.4 Project: The total capital improvement project described in the Contract Documents.
- 1.1.5 Drawings: Graphic and textual portions of the Contract Documents showing the design, location, and dimensions and size of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.
- 1.1.6 Specifications: Written requirements for materials, equipment, systems, standards, and workmanship for the Work, and performance of related services.
- 1.1.7 Project Manual: Volume, which may include the bidding requirements, forms, contracting requirements, and the Specifications.
- 1.1.8 Owner: The person or entity identified as such in the Contract Agreement, referred to throughout the Contract Documents as singular in number. The term Owner means the Owner which is a party to this contract.

- 1.1.9 Contractor: The person or entity identified as such in the Contract Agreement, referred to throughout the Contract Documents as singular in number. The Contractor means the person or other entity entering into the contract with the Owner. The term Contractor means the Prime Contractor or the Prime Contractor-authorized representative.
- 1.1.10 Design Professional (Architect/Engineer/Consultant): The person or entity identified as such in the Agreement, lawfully licensed to practice architecture or engineering or another field of expertise and under contract to Owner to provide design service, advice, and consultation, referred to throughout the Contract Documents as if singular in number. The term Design Professional means the Architect/Engineer/Consultant or the authorized representative.
- 1.1.11 Subcontractor: Any person, firm, or corporation with a direct contract with the Contractor who acts for or in behalf of the Contractor in executing a portion of the Work. The term Subcontractor is referred to as singular in number and means the Subcontractor or the Subcontractor-authorized representative.
- 1.1.12 Inspector: A duly authorized representative of the Owner, DBA and Design Professional, designated for detailed inspection and/or observations of materials, construction, workmanship, and methods of construction.
- 1.1.13 Sites: The particular location of that part of the project being considered.
- 1.1.14 State: The Owner or DBA, or both
- 1.1.15 Day(s): Unless specifically referred to as calendar days, "day(s)" refers to a period of time meaning "work" days.

1.2 **INTENT**

- 1.2.1 The intent of the Contract Documents is to set forth the standards of construction, the quality of materials and equipment, the guarantees that are to be met, and to include items necessary for proper execution and completion of the Work. The Contract Documents are complementary and what is required by one will be as binding as if required by all. Performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable as necessary to produce indicated results.
- 1.2.2 Organization of the Specifications into divisions, sections, and articles, and arrangement of Drawings will 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 which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 **CAPITALIZATION**

- 1.3.1 Terms capitalized in the Contract Documents include those which are specifically defined, the titles to numbered sections and articles, identified references to paragraphs, and the titles of other published documents.

1.4 **INTERPRETATION**

- 1.4.1 Whenever in these Contract Documents the words "as ordered", "as directed", "as required", "as permitted", "as allowed", or words or phrases of like importance are used, it shall be understood that the order, direction, requirement, permission, or allowance of the Owner and Design Professional is intended.
- 1.4.2 Whenever in these Contract Documents the word "product" is used, it shall be understood that the materials, systems, and equipment will be included.
- 1.4.3 Whenever in these Contract Documents the word "provide" is used, it shall be understood that it means to "furnish and install".
- 1.4.4 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.

ARTICLE 2 -- OWNER

2.1 **LAND**

- 2.1.1 The Owner will provide the lands shown on the Drawings upon which the Work shall be performed. The Owner will provide a right-of-way for access to the project site.
- 2.1.2 The Owner will provide base lines for the location of the principle component parts of the Work with a suitable number of benchmarks adjacent to the Work.

2.2 **RIGHT OF ENTRY BY OWNER**

- 2.2.1 The Owner and his authorized representative will have the right to enter the property or location on which the Work shall be constructed. The Owner further reserves the right to construct or have his authorized agents construct such work as the Owner will desire, so long as these operations do not interfere with or delay the work being constructed under this Contract.

2.3 OWNER'S RIGHT TO CARRY OUT THE WORK

- 2.3.1 If the Contractor defaults or neglects to perform the Work in accordance with the Contract Documents, including the requirements with respect to the schedule of completion, and fails after ten days written notice from the Owner to correct the deficiencies, or fails to work diligently to correct the deficiencies. The Owner may deduct the cost thereof from the payment then or thereafter due the Contractor.

ARTICLE 3 -- CONTRACTOR

3.1 GENERAL

- 3.1.1 The Contractor shall perform the Work in accordance with the Contract Documents.
- 3.1.2 The Contractor shall furnish labor, materials, equipment, and transportation necessary for the proper execution of the work unless specifically noted otherwise. The Contractor shall do all the work shown on Drawings and described in Specifications and all incidental work considered necessary to complete the project in a substantial and acceptable manner, and to fully complete the work or improvement, ready for use, occupancy and operation by the Owner. Drawings and Specifications shall be interpreted by the Design Professional or the Owner if no Design Professional exists for the project.
- 3.1.3 The Contractor shall cooperate with the Owner, Design Professional, Inspectors, and with other contractors on the Project. Contractor shall allow inspectors acting in an official capacity, to have access to the project site.
- 3.1.4 The Contractor shall determine that the final and completed work on the project is in accordance with the Contract Documents. The failure of the Design Professional to find or correct errors or omissions in the use of materials or work methods during the progress of the work shall not relieve the Contractor from his responsibility to correct all the defects in the Work.
- 3.1.5 The Contractor shall assist in making final inspections and shall furnish such labor and equipment as may be required for the final tests of equipment, piping, and structures.

3.2 REVIEW OF FIELD CONDITIONS

3.2.1 Before ordering material or doing Work, the Contractor shall verify all measurements involved and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on Drawings; differences which may be found shall be submitted to Design Professional for consideration before proceeding with the Work.

3.2.2 Drawings may show the location or existence of certain exposed and buried utilities as well as existing surface and subsurface structures. The Owner assumes no responsibility for failure to show any or all such utilities and structures on the Drawings or to show such in the exact location. It is mutually agreed such failure will not be considered sufficient basis for claims for extra work or for increasing the pay quantities in any manner unless the obstruction encountered necessitates substantial changes in the lines or grades or requires the building of a special structure.

3.3 **REVIEW OF CONTRACT DOCUMENTS**

3.3.1 The Contractor shall study and compare Drawings, Specifications, and other instructions as a Construction Professional, not as a Design Professional and shall report to the Design Professional at once any error, inconsistency, or omission discovered.

3.3.2 In the event of conflict among the Contract Documents, interpretations will be based on the following order of precedence, stated highest to lowest:

- a. The Agreement
- b. This Division Zero (0) shall control in the event of conflict between this Division Zero (0) and other Divisions.
- c. Addenda to Drawings and Specifications with those of later date having precedence.
- d. Drawings and Specifications

3.3.3 Since the Contract Documents are complementary, the Contractor shall take no advantage of any apparent error or omission in the Drawings and Specifications. The Owner or Design Professional shall furnish interpretations as deemed necessary for the fulfillment of the intent of the Drawings and Specifications.

3.3.4 Discrepancies found between the Drawings and Specifications and actual site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Design Professional or in the case where a Design Professional is not on the Project, the Owner shall be notified, who shall address such error or omission in writing. Work done by the Contractor after discovery of such discrepancies, errors, or omissions shall be at the Contractor's risk and expense.

- 3.3.5 The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Owner, Design Professional, and DBA access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of differences between the drawings and specifications the more stringent document will prevail.

3.4 **REQUEST FOR SUPPLEMENTARY INFORMATION**

- 3.4.1 The Contractor shall make timely requests of the Owner or Design Professional for additional information required for the planning and production of the Work. Such requests shall be submitted as required, but shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Contractor understands and agrees that it is Contractor's duty to determine the need for, and to request said additional information in writing from the Design Professional by such date as allows Design Professional to provide the information to the Contractor by a date that will not adversely affect Contractor's ability to complete the Work by the date specified in the Contract.
- 3.4.2 Additional instructions may be issued by the Design Professional during the progress of the Work to clarify the Drawings and Specifications or as may be necessary to explain or illustrate changes in the Work.

3.5 **SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

- 3.5.1 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. The Owner or their designated representative may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- 3.5.2 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.
- 3.5.3 Samples are physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.
- 3.5.4 The Contractor shall provide shop drawings and other submittals, settings, schedules, and other drawings as may be necessary for the prosecution of the Work in the shop and in the field as required by the Drawings, Specifications, or Design Professional instructions. The Contractor shall coordinate all such drawings, submittals etc. and review them for accuracy, completeness, and compliance with other contract requirements.

Any deviation from the contract documents shall be disclosed upon submission to the Owner/Design Professional. Approval shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract. Any work done before receiving approval from the Owner/Design Professional will be at the Contractor's risk.

3.6 LABOR AND MATERIALS

3.6.1 Except as otherwise specifically stated in the Contract, the Contractor shall provide, but not be limited to, all materials, labor, tools, equipment, water, light, heating and cooling, power, transportation, superintendence, temporary construction of every nature, taxes legally collectible because of the Work, and all other services and facilities of every nature whatsoever necessary to complete the Work in accordance with the Contract Documents in an orderly and efficient manner. The sequence of construction operations shall follow the schedule of construction as approved by the Design Professional. The Work shall not be discontinued by the Contractor without approval of the Design Professional. Should prosecution of the Work be discontinued for any reason, the Contractor shall notify the Design Professional at least twenty-four hours in advance of resuming the Work.

3.6.2 All equipment, material, and articles furnished under this contract shall be new and of most suitable materials grade for the purpose intended, unless otherwise specifically provided in this contract. Materials and equipment furnished under this Contract will be subject to inspection by the Owner's authorized representative or by independent laboratories. Defective material, equipment, or workmanship may be rejected at any time before the acceptance of the Work even though the defective material, equipment, or workmanship may have been previously overlooked and estimated for payment. The Contractor shall replace defective equipment and material in accordance with the Contract Documents at no additional cost to the Owner.

3.6.3 The Contractor shall provide materials and supplies not subject to conditional sales agreements, or other agreement reserving unto the seller any right, title, or interest therein. All materials and supplies shall become the property of the Owner upon final acceptance of this Contract by the Owner.

3.6.4 If shop tests are to be conducted, the Contractor shall notify the Owner of such tests so a representative may witness tests, if desired.

3.6.5 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Design Professional, and in accordance with a Change Order.

3.7 UNAUTHORIZED WORK

- 3.7.1 Work done without lines and grades having been given or work done beyond the lines or not in conformity with the grades shown on the Drawings or as provided by the Owner, except as provided herein, and work completed without proper inspection and supervision or any extra or unclassified work completed without written authority and prior agreement shall be at the Contractor's risk. Such unauthorized work, at the option of the Design Professional, may not be measured and paid for and may be ordered removed at the Contractor's expense.

3.8 **SUPERINTENDENCE**

- 3.8.1 The Contractor shall supervise and direct the Work. The Contractor shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for coordinating portions of the Work under the Contract.
- 3.8.2 The Contractor shall employ a qualified superintendent during the duration of the Project who is acceptable to the Owner, Design Professional and DBA Construction. The superintendent shall be maintained on the Project site and shall be present on the site at all times work is in progress. The superintendent shall be capable of reading and understanding the Drawings and Specifications and shall have full authority to act in behalf of the Contractor. All directions and instructions given to the Superintendent shall be considered as given to the Contractor and shall be as binding as if given to the Contractor.
- 3.8.3 Workmanship shall be performed by workmen experienced in their trade and skilled and experienced for the class of work to which assigned. Any person, including supervisory personnel, who does not show and exhibit skill and proficiency in said work shall be removed by the Contractor and replaced by a competent and experienced workman.
- 3.8.4 The Contractor shall, at all times, be responsible for the conduct and discipline of his employees and all Subcontractors and their employees. Disorderly, incompetent or intemperate persons, or persons who commit any crimes or trespass on public or private property in the vicinity of the Work must not be allowed to continue working upon the project which the Contractor has with the State. Any superintendent, foreman or workman employed by the Contractor or a Subcontractor who unreasonably refuses or neglects to comply with the instructions of the Owner, Design Professional, or Inspector, shall, at the written request of the Owner or Design Professional, be removed from the work site and shall not be allowed to work further on any portion of the work or another State Project without the approval of the Owner.

- 3.8.5 The Contractor shall coordinate Work by the various trades to provide uniform and symmetrical layout and spacing of the exposed components which will affect the finished design and appearance. Where spacing and related locations are not specifically shown on Drawings or where in doubt, the Contractor shall consult the Design Professional prior to installation of that part of the Work.

3.9 **PERMITS, FEES, AND NOTICES**

- 3.9.1 The Contractor shall purchase and secure all applicable permits and licenses and give all notices necessary and incidental to the prosecution of the Work. However, in accordance with Ark. Code Ann. §22-9-213, public works construction projects conducted by DBA or other state agencies are exempt from permit fees or inspection requirements of county or municipal ordinances.

- 3.9.2 When new construction under the Contract crosses highways, railroads, streets or utilities under the jurisdiction of the state, county, city, or other public agency, public utility, or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission shall be filed with the Owner before any work is completed. The Contractor shall furnish a release from the proper authority before final acceptance of the Work. Any bonds required for this Work shall be secured and paid for by the Contractor.

3.10 **SAMPLES AND TESTS**

- 3.10.1 The Contractor shall provide samples, materials, and equipment necessary or required for testing as outlined in the various sections of the Specifications or as directed by the Owner. The Contractor shall pay all costs for testing. Should materials, methods, or systems fail to meet specified standards, the Contractor shall pay all costs for additional testing as required by the Owner.

- 3.10.2 All tests shall be made by a laboratory approved by the Owner.

3.11 **LOCATION, GRADIENT, AND ALIGNMENT**

- 3.11.1 Based upon the site information provided by the Owner and verified by the Contractor, the Contractor shall develop and make detailed surveys necessary for construction including slope stakes, batter boards, and other working points, lines and elevations. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

- 3.11.2 The Contractor shall report any errors, inconsistencies, or omissions to the Design Professional as a request for information.

- 3.11.3 The Contractor shall preserve benchmarks, reference points and stakes, and in the case of destruction thereof by the Contractor, shall be responsible for damage or mistakes resulting from unnecessary loss or disturbance.

3.12 **LAND**

- 3.12.1 Additional land and access thereto not shown on Drawings that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor at his expense with no liability to the Owner. The Contractor shall confine his equipment and storage of materials and the operation of his workmen to those areas shown on the Drawings and described in the Specifications, and such additional areas which he may provide or secure as approved by the Owner.

- 3.12.2 The Contractor shall not enter upon private property for any purpose without first obtaining permission.

- 3.12.3 The Contractor shall be responsible for the preservation of and prevent damage or injury to all trees, monuments, and other public property along and adjacent to the street and right-of-way. The Contractor shall prevent damage to pipes, conduits and other underground structures, and shall protect from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location, and shall not remove monuments or property marks until directed.

3.13 **LIMITS OF WORK**

- 3.13.1 The Contractor shall conduct Work and operations so as to cause a minimum of inconvenience to the public. At any time when, in the opinion of the Owner or Design Professional, the Contractor is obstructing a larger portion of a road, street, or other public right-of-way than is necessary for the proper execution of the Work, the Design Professional may require the Contractor to finish the sections on which work is in progress before work is commenced on any new sections.

3.14 **WARRANTY**

- 3.14.1 In addition to any other warranties in this contract, the Contractor warrants that Work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any Subcontractor or supplier. The Contractor shall warrant that all Work, materials, and equipment furnished will be free from defects in design, materials, and workmanship and will give successful service under the conditions required.

The warranty period for Work, materials, and equipment furnished by the Contractor shall be one year from the date of the written acceptance of the Work as stated in the Substantial Completion Form approved by the Contractor, Owner, Design Professional and DBA or the date that the DBA approves the final payment request, unless a longer period is agreed upon.

- 3.14.2 Warranty of Title: The Contractor warrants good title to all materials, supplies, and equipment incorporated in the Work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

3.15 **PATENTS AND ROYALTIES**

- 3.15.1 If the Contractor is required or desires to use any design, device, material or process covered by letters, patent, or copyright, he shall provide for such use by suitable legal agreement with the patents or Owner. It is mutually understood and agreed that without exception the Contract Sum shall include all royalties or costs arising from patents, trademarks, and copyrights in any way involved in the Work.

The Contractor and the surety shall defend, indemnify, and save harmless the Owner and all its officers, agents and employees from all suits, actions, or claims of any character, name and description brought for or on account of infringement or alleged infringement by reason of the use of any such patented design, device, material or process of any trademark or copyright used in connection with the Work agreed to be performed under this Contract, and shall indemnify the Owner for any cost, expense, or damage which it may be obliged to pay by reason of any action or actions, suit or suits which may be commenced against the Owner for any such infringement or alleged infringement at any time during the prosecution of the Work contracted for herein.

It is mutually agreed that the Owner may give written notice of any such suit to the Contractor, and thereafter, the Contractor shall attend to the defense of the same and save and keep harmless the Owner from all expense, counsel fees, cost liabilities, disbursements, recoveries, judgments, and executions in any manner growing out of, pertaining to, or connected therewith.

3.16 **CLEANING UP**

- 3.16.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials, not purchased for or by the Owner.

- 3.16.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

ARTICLE 4 -- ADMINISTRATION OF CONTRACT

4.1 DESIGN PROFESSIONAL AUTHORITY

- 4.1.1 The Design Professional will interpret the requirements of the Contract Documents and decide matters concerning performance there under on request of the Owner or Contractor.
- 4.1.2 The Design Professional will provide administration of the Contract as described in the Contract Documents and will be the Owner's representative. The Design Professional will decide any and all questions as to the acceptability of materials or equipment furnished, work performed, interpretation of the Drawings and Specifications, rate of progress of the Work, acceptability of the quality of workmanship provided, and other questions as to the fulfillment of the Contract by the Contractor.
- 4.1.3 The Design Professional will prepare all change orders on the form specified by DBA. The Design Professional may authorize minor changes in the Work not involving adjustment in Contract Sum or extension of Contract Time and not inconsistent with the intent of the Contract Documents.
- 4.1.4 The Design Professional and his authorized representatives, Owner and DBA will have the right to enter the property or location on which the Work shall be constructed.

4.2 CLAIMS

- 4.2.1 Definition: A claim is a demand or assertion by one of the parties seeking adjustment, or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. The term includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims will be initiated by written notice. The responsibility to substantiate claims shall rest with the party making the claim.
- 4.2.2 Claims of the Contractor or the Owner: Claims regarding the Work of the Contract shall be referred initially to the Design Professional for a decision. The Design Professional will review claims, and 1) reject in whole or in part; 2) approve the claim; 3) suggest a compromise; 4) advise the parties that the Design Professional is unable to resolve the claim.

- 4.2.3 Claims for Concealed or Unknown Conditions: If new and unforeseen items of work are discovered, which cannot be covered by any item or combination of items for which there is a Contract Sum, then the Contractor shall notify the Design Professional as quickly as reasonably possible and shall not continue working on the discovered new or unforeseen items without express written permission from the Design Professional. The Contractor shall complete such work and furnish such materials as may be required for the proper completion or construction of the work contemplated upon written Change Order from the Design Professional as approved by the Owner and DBA. Work shall be performed in accordance with the Contract Documents.
- 4.2.4 Claims for Extensions of Time: The Contractor shall provide written notice to Design Professional within seven calendar days stating the cause of the delay and request an extension of Contract Time. The Design Professional will act on the request in writing. The extension of time shall be for a period equivalent to the time lost by reasons indicated. No extension of time shall be effective until included in a Change Order approved by the Owner, Design Professional and DBA.
- 4.2.5 Claims for Changes in the Work: The Contractor shall provide written notice to Design Professional within seven calendar days after the receipt of instructions from the Owner, as approved by the Design Professional and DBA to proceed with changes in the Work and before such Work is commenced. Changes in the Work shall not be commenced before the claim for payment has been approved, except in emergencies endangering life or property. The Contractor's itemized estimate sheets showing labor and material shall be submitted to the Design Professional. The Owner's order (Change Order) for changes in the Work shall specify any extension of the Contract Time and one of the following methods of payment:
- a. Unit prices or combinations of unit prices, which formed the basis of the original Contract.
 - b. A lump sum fee based on the Contractor's estimate, approved by the Design Professional and accepted by the Owner.
 - c. The applicable methods of computation as set forth in 7.2.2.3.
- 4.2.6 Claims for Additional Costs: In case of an emergency which threatens loss or injury of property or safety of life, the Contractor shall be allowed to act, without previous instructions from the Design Professional, in a diligent manner. The Contractor shall notify the Design Professional immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted, but in no case more than 7 calendar days following the event causing the emergency, to the Design Professional for consideration.

The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided under these General Conditions. No agreement to pay costs for additional work shall be effective until included in a Change Order approved by the Owner, Contractor, the Design Professional and DBA.

ARTICLE 5 -- SUBCONTRACTORS

5.1 ASSIGNMENT OF CONTRACT

- 5.1.1 Neither the Owner nor the Contractor shall have the right to sublet, sell, transfer, assign, or otherwise dispose of the "Contract" or any portion thereof without written consent of the other party. No assignment, transfer, or subletting, even with the proper consent, shall relieve the Contractor of his liabilities under this Contract. Should any Assignee or Subcontractor fail to perform the work undertaken by him in a satisfactory manner, the Owner, with DBA approval, has the right to annul and terminate the Assignee's or Subcontractor's contract on the project.

5.2 SUBCONTRACTS

- 5.2.1 The subcontracting of the whole or any part of the Work to be done under this Contract will not relieve the Contractor of his responsibility and obligations. All transactions of the Owner or Design Professional shall be with the Contractor. Subcontractors will be considered only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competency.
- 5.2.2 The Contractor shall discharge or otherwise remove from the project any Subcontractor that the Owner or the Design Professional has reasonably determined as incompetent or unfit.
- 5.2.3 The Contractor may not change those Subcontractors listed on the proposal without the written approval of the Owner, Design Professional and DBA. The Contractor shall submit written evidence, which includes but is not limited to, that the substituted contractor is costing the same amount of money or less and if costing less, that the saving will be deducted from the total contract of the prime contractor and rebated to the Owner prior to any approval. The Contractor shall submit his request to the Design Professional who then shall review the request, if approved, the request and approval shall be forwarded to the Owner. The Owner shall then review the request and accompanying paperwork and if approved, shall forward the approval and the accompanying documents to DBA. DBA shall review all of the documents.

DBA shall provide written notification to the Contractor, Design Professional and Owner as its determination. The Contractor shall not be relieved of any liabilities under this Contract, but shall be fully responsible for any Subcontractor or work by said Subcontractor where Subcontractor is employed by the Contractor to perform work under this Contract. Nothing contained in the Contract Documents shall create contractual relations between any Subcontractor and the State.

- 5.2.4 No officer, agent, or employee of the Owner, including the Design Professional, shall have any power or authority to bind the Owner or incur any obligation in his behalf to any Subcontractor, material supplier or other person in any manner whatsoever.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OTHER CONTRACTS

- 6.1.1 The Owner reserves the right to award other contracts in connection with the Project. The Contractor shall cooperate with the other contractors with regard to the storage of materials and equipment, access to the site, and execution of their work. It shall be the Contractor's responsibility to inspect the work of other contractors which will affect the work of this Contract and to report to the Owner irregularities which will not permit him to complete his work in a satisfactory manner or in the time allotted. Failure to so report shall constitute an acceptance of the work of other contractors.

6.2 DEPENDENCE ON OTHERS

- 6.2.1 If any part of the Contractor's work depends for proper execution or results upon the work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the work, promptly report to the Design Professional any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acceptance of the work.

ARTICLE 7 -- CHANGES IN THE WORK

7.1 GENERAL

- 7.1.1 The Owner may, as the need arises, without invalidating the Contract, order changes in the work in the form of additions, deletions, or modifications. Compensation to the Contractor for additional work or to the Owner for deductions in the work and adjustments for the time of completion shall be adjusted at the time of ordering such change.

7.1.2 Additional work shall be done as ordered in writing by the Owner. The order shall state the location, character, and amount of extra work. All such work shall be executed under the conditions of the Contract, subject to the same inspections and tests.

7.1.3 The Design Professional and the Owner reserve and shall have the right to make changes in the Contract Documents and the character or quantity of the work as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner.

7.2 **CHANGE ORDERS**

7.2.1 A Change Order is a written instrument, prepared by the Design Professional/DBA and approved by the Design Professional, the Contractor, the Owner, and DBA, stating their agreement upon the following, separately or in any combination thereof:

- a. Description and details of the work.
- b. Amount of the adjustment in the Contract Sum.
- c. Extent of the adjustment in the Contract Time.
- d. Terms and conditions of the Contract Documents.

7.2.2 Change Order requests by the Contractor shall be submitted in a complete itemized breakdown, acceptable to the Owner, Design Professional and DBA. Nothing contained in the change order shall be construed to waive the sovereign immunity of the State or entities thereof.

7.2.2.1 Where unit prices are stated in the Contract, Contractor should submit an itemized breakdown showing each unit price and quantities of any changes in the Contract Amount. The value of all such additions and deductions shall then be computed as set forth in Paragraph 7.2.2.3.

7.2.2.2 The Contractor shall present an itemized accounting together with appropriate supporting data for the purposes of considering additions or deductions to the Contract Amount. Supporting data shall include but is not limited to the following:

- a. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and worker or workmen's compensation insurance;
- b. Cost of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- c. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

- d. Costs of premiums for all bonds and insurance, permit fees, and sales, use of similar taxes related to the Work; and
- e. Additional costs of supervision and field office personnel directly attributable to the change. (General Conditions)

The burden of proof of cost rests upon the Contractor. Contractor agrees that DBA or Owner's Representative shall have the right, at reasonable times, to inspect and audit the books and records of Contractor to verify the propriety and granting of such cost.

7.2.2.3 Compute requests for changes be they additions or deductions as follows:

- a. For work performed by the Contractor which results in an overall increase in the contract sum: example

Net Cost of Materials	a. _____
State Sales Tax	b. _____
Net Placing Cost <u>including Owner approved General Conditions</u>	c. _____
W.C. Insurance Premium and FICA Tax	d. _____
Subtotal of a+b+c+d: _____	
Overhead and Profit, shall not exceed 12% x (a+b+c+d)	e. _____
Allowable Bond Premium	f. _____
TOTAL COST	
a+b+c+d+e+f : _____	

- b. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the contract sum shall be actual net cost as computed as outlined in 7.2.2.3.a (a. through e.) and confirmed by the Design Professional. Credit for work deleted shall be computed as outlined in 7.2.2.3.a (a. through e.), except the Contractor's share of overhead and profit percentage is not less than seven (7) percent.
- c. For added work performed by Subcontractors: Subcontractors shall compute their work as outlined in 7.2.2.3.a (a. through e.) to the cost of that portion of the work (Change) that is performed by the Subcontractor. The Contractor overhead and profit change shall not exceed five (5) percent plus the allowable bond premium.

- d. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the contract sum by a Subcontractor shall be actual net cost as computed as outlined in 7.2.2.3.a (a. through e.) and confirmed by the Design Professional for work deleted by a Subcontractor: Subcontractors shall compute their work as outlined in 7.2.2.3.a (a. through e.), except that the overhead and profit shall be not less than seven (7) percent and the Contractor's overhead and profit shall be not less than five (5) percent.

7.3 PAYMENT FOR CHANGES IN THE WORK

- 7.3.1 All changes in the Work will be paid for in the manner indicated in Article 4, Paragraph 4.2, and the compensation thus provided shall be accepted by the Contractor as payment in full for the use of small tools, superintendent's services, premium on bond, and all other overhead expenses incurred in the prosecution of such work.
- 7.3.2 The Owner shall not be deemed to have agreed to any costs for additional work, to have agreed to additional time for completion, or to have agreed to any other change in the terms and conditions of the Contract Documents until Owner, Design Professional and Contractor have executed a Change Order to this Contract, and the Change Order is approved by DBA.

ARTICLE 8 -- TIME

8.1 DEFINITIONS

- 8.1.1 Contract Time is the period of time identified in the Contract Documents for Substantial Completion of the Work, including authorized adjustments made as part of Change Orders agreed to by the Owner, Contractor, Design Professional and DBA.
- 8.1.2 Date for commencement of the Work is the fifth calendar day following the start date listed on the Notice to Proceed, unless otherwise stated in the Contract.
- 8.1.3 Date of Substantial Completion is the date certified by the Design Professional, the Owner and DBA.

8.2 PROGRESS

- 8.2.1 Time limits identified in the Contract Documents are of the essence of the Contract. The Contractor confirms that the Contract Time is a reasonable period of time for performing the Work.

8.3 HOLIDAYS

- 8.3.1 New Year's Day, Robert E. Lee/Dr. Martin Luther King's Birthday, President's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and the day thereafter, Christmas Eve and Christmas Day will be considered as being legal holidays; no other days will be considered unless declared by the Governor of the State of Arkansas through an Executive Order or Proclamation. No Design Professional clarifications, observations, or State inspections will be provided on legal holidays, Saturdays and Sundays, and no work shall be performed on these days except in an emergency or with written approval in advance by the Design Professional and Owner.

8.4 DELAYS

- 8.4.1 Delays beyond the Contractor's control occasioned by an act or omission on the part of the Owner, strikes, fires, additions to the Work, delays by any separate contractor employed by the Owner, extremely abnormal weather conditions, or other delays beyond the Contractor's control may, if agreed to by Change Order by the Contractor, Owner, Design Professional and DBA entitle the Contractor to an extension of time in which to complete the Work. While such delays may be just cause for an extension of the Contract Time, the Contractor shall not have a claim for damages for any such cause or delay.

ARTICLE 9 -- PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

- 9.1.1 The Contractor shall accept the compensation, as herein provided, in full payment for furnishing all materials, equipment, labor, tools, and incidentals necessary to complete the Work and for performing all Work contemplated and embraced under the Contract. Also, for loss or damage arising from the nature of the Work, from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the final acceptance by the Design Professional and Owner; and for all risks of every description connected with the prosecution of the Work; for all expenses incurred in consequence of the suspension or discontinuance of the Work as specified; and for any infringement of patent, trademark, or copyright, and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

9.1.2 No moneys payable under Contract or any part thereof, except the estimate for the first month or period, shall become due and payable if the Owner so elects until the Contractor shall satisfy the said Owner that he has fully settled or paid for all materials and equipment used in or on the Work and labor done in connection therewith, and the Owner, if he so elects, may pay any or all such bills wholly or in part and deduct the amount or amounts so paid from any monthly or final estimate excepting the first estimate.

9.1.3 In the event the surety on any contract or payment bond given by the Contractor becomes insolvent, or is placed in the hands of a receiver, or has the right to do business in a state revoked as provided by law, the Owner may at its election withhold payment of any estimate filed or approved by the Design Professional until the Contractor shall give a good and sufficient bond in lieu of the bond so executed by such surety. Any and all subsequent bonds shall be filed with the Circuit Clerk of the County in which the Work is being performed.

9.2 **SCHEDULE OF VALUES**

9.2.1 The Contractor shall submit to the Design Professional a schedule of values for each part of the Work. The schedule shall be a complete breakdown of labor and materials for the various parts of the Work including an allowance for profit and overhead. The total of these amounts shall equal the Contract Sum. The approved schedule of values shall be used as a basis for the monthly payments to the Contractor. In applying for the monthly payment, the Contractor shall show a detailed account of work accomplished in conformity with the schedule.

9.3 **MEASUREMENT OF QUANTITIES**

9.3.1 The Contractor shall be paid for all Work performed under the Contract based on Design Professional computations of as-built quantities and the Contractor's Contract Sum. This payment shall be full compensation for furnishing all supplies, materials, tools, equipment, transportation, and labor required to do the Work; for all loss or damage, because of the nature of the Work, from the action of the elements or from any unforeseen obstruction or difficulty which may be encountered in the prosecution of the Work and for which payment is not specifically provided for all or any part of the Work; and for well and faithfully completing the Work in accordance with the Contract Documents. The method of computation and payment for each item shall be as set forth in the Specifications or the Supplementary Conditions.

9.4 **REQUESTS FOR PAYMENT**

- 9.4.1 The Contractor may submit periodically, but not more often than once each month, a Request for Payment for work completed. When unit prices are specified in the Contract Documents, the Request for Payment shall be based on the quantities completed.
- 9.4.2 Unless otherwise provided in the Contract Documents, payments will be made on account of materials or equipment not incorporated in the Work to date but delivered and suitably stored at the site, and if approved in advance by the Owner, payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner and the Design Professional to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest including applicable insurance and transportation to the site for those materials and equipment stored off the site.
- 9.4.3 The Contractor shall furnish the Design Professional all reasonable facilities and job tickets required for obtaining the necessary information relative to the progress and execution of the Work and the measurement of quantities. Each Request for Payment shall be computed from the Work completed on all items listed in the approved schedule of values less five (5) percent (retainage) of the adjusted Contract Sum and less previous payments to the Contractor on the Contract. Retainage may be waived pursuant to the process and procedures as stated in 9.5.2.

9.5 PERIODIC ESTIMATES FOR PAYMENT

- 9.5.1 Unless otherwise stated in the Specifications or Supplementary Conditions, the Owner shall cause the Design Professional to prepare an Estimate for Payment to the Contractor each month. The Design Professional will make the estimate for the materials complete in place and the amount of work performed in accordance with the Contract between the twenty-fifth day of the month and the fifth day of the succeeding month.

- 9.5.2 From the total of the amount estimated to be paid, an amount equal to five (5) percent of the total completed shall be retained from each payment request. The Owner may waive withholding retainage of the progress payments if both of the Design Professional and Owner agree the Work is fifty (50) percent complete and the Contractor has provided the Work in a satisfactory manner. Nothing in the proceeding sentence shall be construed as prohibiting the Owner from maintaining the withholding of retainage (5%) throughout the entire project. All sums withheld by the Owner and requested in a Final Pay Request prepared by the Owner or Contractor will be paid to the Contractor within 30 days after the Contract has been completed and the work approved by DBA. No retainage will be withheld on that amount of the progress payment pertaining to the cost of materials stored at the site or within a bonded warehouse.

9.6 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

- 9.6.1 When alterations in the quantities of work not requiring Contract modifications are ordered and performed, the Contractor shall accept payment in full at the Contract Sum, for the actual quantities of work accomplished. No allowance will be made for anticipated profits. Increased or decreased work involving Contract modifications shall be paid for as stipulated in such Contract modifications.

9.7 DESIGN PROFESSIONAL'S ACTION ON A REQUEST FOR PAYMENT (See also 9.9)

- 9.7.1 The Owner shall cause the Design Professional to, within five working days plus time required for transmittal from one party to another, act on a Request for Payment by the Contractor in one of the following:
- a. Approve the Request for Payment as submitted by the Contractor, and transmit same to the Owner.
 - b. Approve an adjusted amount, as the Design Professional will decide is due the Contractor informing the Contractor in writing of the reason for the adjusted amount, and transmit same to the Owner.
 - c. Withhold the Request for Payment submitted by the Contractor informing the Contractor, Owner and DBA in writing of the reason for withholding the request.

9.8 ACTION ON A REQUEST FOR PAYMENT AND FINAL PAYMENT
(See also 9.9)

- 9.8.1 The Owner will, within five working days plus transmittal time between the various state agencies involved, act on a Request for Payment (not Final) after approval by the Design Professional by one of the following:

- a. Approve the Request for Payment as approved by the Design Professional and process the payment.
 - b. Approve payment of an adjusted amount as the Owner will decide is due the Contractor, informing the Contractor and the Design Professional in writing of the reason for the adjusted amount of payment.
 - c. Withhold the Request for Payment informing the Contractor and the Design Professional in writing of the reason for withholding the payment.
- 9.8.2 The State shall process payments in accordance with Ark. Code Ann. §19-4-1410, which establishes the time limits for the Design Professional, the Owner, and the Department of Finance and Administration. It also authorizes the Chief Fiscal Officer of the State to investigate any complaints of late payments and assess penalties for late payment. Complaints shall be addresses to: Chief Fiscal Officer of the State: Department of Finance and Administration; 1509 West Seventh Street, Suite 401; Post Office Box 3278; Little Rock, AR 72203-3278.
- 9.8.3 The Design Professional or the State may withhold payment for contested issues, including but not limited to, defective work on the project; evidence indicating the probable filing of claims by other parties against the Contractor related to the project; damage caused to another contractor; reasonable evidence that Work cannot be completed for the unpaid balance of the Contract Sum or within Contract Time or failure of the Contractor to make payments on materials, equipment or labor to subcontractors. It is the responsibility of the contesting party to notify the Contractor in writing that payment has been contested and the reasons why. The notification must be done within the timeframe specified for processing of payment under Ark. Code Ann. §19-4-1410.
- 9.9 **PAYMENT FOR UNCORRECTED WORK**
- 9.9.1 Should the Design Professional direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Sum shall be made to compensate the Owner for the uncorrected work. The Design Professional shall determine the amount of the equitable deduction.
- 9.10 **PAYMENT FOR REJECTED MATERIALS AND WORK**

- 9.10.1 The removal of rejected Work and materials and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor. The Contractor shall pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement with acceptable work.

9.11 DATE OF SUBSTANTIAL COMPLETION

- 9.11.1 A Certificate of Substantial Completion, which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to work, and insurance and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion, unless another timeframe is stated in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall not become effective until approved by DBA.

9.12 FINAL COMPLETION AND PAYMENT BY OWNER

- 9.12.1 The Contractor shall furnish a letter from the Design Professional attached to the Contractor's final estimate, which shall include all retainage withheld, certifying that the Design Professional has received and approved all guarantees, bonds, maintenance and operation manuals, air balance data, shop drawings, catalog data, and record documents specified in the Contract Documents.
- 9.12.2 Before final payment, the Contractor shall furnish to the Design Professional executed copies of the Release of Claims and Consent of the Performance and Payment Bond Surety for Final Payment. Items listed in this Section Nine (9) shall be submitted with and at the same time as the final estimate to the Design Professional and shall be promptly delivered by the Design Professional to the Owner. No final payment or release of retained amounts shall be made without complete compliance with this Section Nine (9), and approval by the Owner and DBA of the Final Pay Request, which shall include payment of all retained amounts.
- 9.12.3 Any claim by the Contractor to the Owner for interest on a delinquent final payment shall only be made pursuant to Ark. Code Ann. § 22-9-205.

9.13 PARTIAL OCCUPANCY OR USE

- 9.13.1 The Owner may occupy or use any completed or partially completed portion of the Work provided such use or occupancy is consented to by the insurer and authorized. The Contractor will prepare a list of items to be completed or corrected before partial acceptance. Upon receipt of the Contractor's list, the Design Professional will make an inspection to determine whether the Work or portion thereof is substantially complete. No portion of the work shall be considered substantially complete unless described in a Certificate of Substantial Completion Form approved by the Contractor, Owner, Design Professional and DBA.
- 9.13.2 The Design Professional will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to Work and insurance, identify work items to be corrected or completed by the Contractor and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion, unless another timeframe is stated in the Certificate of Substantial Completion. No retained amounts shall be paid until the Contractor, Design Professional, Owner and DBA approve a Certificate of Final Completion for all of the Work unless specifically provided for by this contract, and all other conditions for final acceptance of this Work are met to the satisfaction of the Owner and DBA.
- 9.13.3 If the contract documents allow for phased work and those phased sections of the project are completed, the retained amounts shall be paid in direct proportion to the value of the part of the capital improvement project completed as approved by the Contractor, Design Professional, Owner, and DBA and all other conditions of this Section Nine (9) are met by the Contractor.

9.14 **FINAL INSPECTION**

- 9.14.1 Tests, inspections, and approvals of portions of the Work required by the Contract Documents, laws, ordinances, or any public authority having jurisdiction shall be made at the appropriate time. The Contractor shall give the Design Professional timely notice of when and where tests and inspections shall be made so that the Design Professional may be present. The Contractor shall make arrangements for the testing and inspection with an independent testing laboratory.

- 9.14.2 The Contractor shall ensure that the final completed work is in accordance with the Contract Documents. Required certificates of testing and inspection shall be secured by the Contractor and delivered to the Design Professional, unless otherwise required by the Contract Documents. The Design Professional (or Owner, in the absence of a design professional) will coordinate the scheduling of the final inspection with all parties, to include specifically the DBA Observer. Upon completion of all work, including but not limited to the punch list items, all parties will execute the Certificate of Final Completion form setting forth the final completion date.

9.15 **ASSIGNMENT OF WARRANTIES**

- 9.15.1 All warranties of materials and workmanship running in favor of the Contractor shall be transferred and assigned to the Owner on completion of the Work and at such time as the Contractor receives final payment.
- 9.15.2 In case of warranties covering work performed by Subcontractors, such warranties shall be addressed to and in favor of the Owner. The Contractor shall be responsible for delivery of such warranties to the Owner prior to final acceptance of the work.
- 9.15.3 Delivery of guarantees or warranties shall not relieve the Contractor from any obligation assumed under any provision of the Contract. All warranties shall be for one year from the date of Substantial Completion of the Project, unless noted differently in the contract documents or extended otherwise.

9.16 **ACCEPTANCE AND FINAL PAYMENT**

- 9.16.1 Upon receipt of written notice that the Work is ready for final inspection, the Design Professional together with the Owner and DBA will conduct such inspection and when the Design Professional determines the work is acceptable to the Design Professional, Owner and DBA the Design Professional shall certify his acceptance to the Owner. Final Payment shall be the Contract Sum plus approved Change Order additions less approved Change Order deductions and less previous payments made. The Contractor shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the Work.

The Owner, upon approval by the Design Professional of all documentation to be provided by the Contractor in accordance with this Section 9, and approval by the Design Professional, Contractor, Owner and DBA of the Certificate of Final Completion will accept the Work and release the Contractor, except as to the conditions of the Performance and Payment Bond, any legal rights of the Owner, required guarantees and correction of faulty work after Final Payment, and shall authorize payment of the Contractor's final Request for Payment. The Contractor must allow sufficient time between the time of completion of the work and approval of the final Request for Payment for the Design Professional to assemble and check the necessary data.

- 9.16.2 Acceptance of final payment by the Contractor shall constitute waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Request for Payment. Any claims for interest on delinquent payments shall be made pursuant to Ark. Code Ann. § 22-9-205.

ARTICLE 10 -- PROTECTION OF PERSONS AND PROPERTY

10.1 GENERAL

- 10.1.1 The Contractor shall at all times exercise precaution for the safety of employees on the Project and of the public, and shall comply with all applicable provisions of federal, state and municipal safety laws and applicable building and construction codes. The Contractor shall provide and maintain passageways, guard fences, lights, and other facilities for protection required by all applicable laws. All machinery, equipment, and other physical hazards shall be guarded in accordance with all federal, state or municipal laws or regulations.
- 10.1.2 The Work, from commencement to completion, and until written acceptance by the Design Professional, Owner and DBA or to such earlier date or dates when the Owner may take possession and control in accordance with Section Nine (9) of these General Conditions, shall be under the charge and control of the Contractor and during such period of control by the Contractor, all risks in connection therewith shall be borne by the Contractor. The Contractor shall make good and fully repair all damages to the Project by reason of the Contractor's negligence, and make good on all injuries to persons caused by any casualty or cause by reason of the Contractor's negligence. The Contractor shall adequately protect adjacent Property as provided by law and the Contract Documents. The Contractor shall hold the Owner and DBA harmless from any and all claims for injuries to persons or for damage to property during the control by the Contractor of the project or any part thereof.

- 10.1.3 The Contractor shall at all times so conduct the Work as to ensure the least possible obstruction to traffic, to the general public, and the residents in the vicinity of the Work, and to ensure the protection of persons and property. No road, street, or highway shall be closed to the public except with the permission of the Owner and proper governmental authority. Fire hydrants on or adjacent to the Work shall be kept accessible to fire fighting equipment at all times. The local fire department shall be notified of the temporary closing of any street.

ARTICLE 11 -- INSURANCE AND BONDS

11.1 INSURANCE REQUIREMENTS

- 11.1.1 The Contractor shall purchase and maintain in force during this Contract such insurance as is specified within the Contract Documents, from an insurance company authorized to write the prescribed insurance in the jurisdiction where the Project is located as will protect the Contractor, his subcontractors, and the Owner from claims for bodily injury, death, or property damage which may arise from operations under this Contract, and will protect him from claims set forth which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by anyone directly or indirectly employed by any of them, or by anyone for whose acts may of them be liable.

The Contractor shall not commence work under this Contract until he has obtained all the insurance required, has filed the Certificate of Insurance with the Owner, and the certificate has been approved by the Owner. Each insurance policy shall contain a clause providing that it shall not be canceled by the insurance company without written notice to the Owner of intention to cancel in accordance with Ark. Code Ann. § 23-66-206. The Contractor is required to provide liability insurance with the additional insured endorsement that is primary non-contributory. All policies shall contain a waiver of the Contractor's right of subrogation against the State of Arkansas, its departments, agencies, boards, commissions, colleges and its officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

- 11.1.2 Workers' Compensation and Employers' Liability Insurance in statutory limits shall be secured and maintained as required by the laws of the State of Arkansas. This insurance shall cover all employees who have performed any of the obligations assumed by the Contractor under these Contract Documents including Employers' Liability Insurance. This insurance shall protect the Contractor against any and all claims resulting from injuries, sickness, disease, or death to employees engaged in work under this Contract.

- 11.1.3 Commercial General Liability Insurance, shall be secured and maintained in force during the period of the Contract. Prior to blasting, the Contractor shall furnish Certificate of Insurance, which shall certify that damage caused by blasting is within the coverage of his Commercial General Liability Insurance to the full limits thereof. Coverage for "completed operations" shall not be excluded under this commercial general liability Insurance section.
- 11.1.4 Commercial Automobile Liability Insurance shall be secured and maintained in force during this Contract. Liability coverage shall include coverage for hired and non-owned automobiles.
- 11.1.5 Umbrella Liability shall be secured and maintained in force during term of the Contract. The Contractor shall provide a Umbrella Liability Insurance to provide additional coverage over and above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employers' Liability to satisfy the Contract minimum limits. The umbrella coverage shall follow form with the Umbrella limits required as shown in section 00 73 16 Insurance Requirements.
- 11.1.6 Pollution Liability Insurance shall cover the Owner costs and liabilities attributable to bodily injury; property damage, including loss of use of damaged property or of property that has not been physically injured; clean-up cost; and defenses, including costs and expenses (including attorney's fees) incurred in the investigation, defense or settlement of claims.

If coverage is written on a claims-made basis, Contractor represents that any retroactive dates applicable to coverage under the policy precedes the effective date of the letter; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of three (3) years or as required by law beginning from the time that services under the contract are completed.

If the scope of work as defined in this Contract includes the disposal of any hazardous or non-hazardous materials from the Projects site, the Contractor must furnish to the Owner evidence of pollution liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting waste under this Contract. Such coverage must be maintained in amounts conforming with applicable laws, rules and regulations.

Remediation: Remediation Contractor shall provide liability insurance for the removal or remediation of asbestos including the transportation and disposals of asbestos waste materials from the Project site.

- 11.1.7 Builder's Risk or Installation Floater Policy: The Contractor shall procure and maintain during the life of this Contract Builder's Risk or Installation Floater Insurance, and any extended coverage which shall cover damage for the capital improvement project. Perils to be insured are fire, lightning, malicious mischief, explosion, riot and civil commotion, smoke, sprinkler leakage, water damage, windstorm, hail, vandalism, and property theft on the insurable portion of the Project on a 100 percent completed value basis against damage to the equipment, structures, or material. Builders' risk policy shall include coverage for system testing and materials. The Owner and the Contractor, as their interests may appear, shall be named as the Insured. The Builders' Risk is not void if partial occupancy is required and a permission to occupy endorsement has been included when applicable. Builders' risk policy shall include "soft cost endorsement" in the amount of 10 percent of the total contract value.

Contractors will use the following information as guidance for the type of policy to procure which include but not limited to the following:

- a) All new building construction and major renovations will require Builders Risk insurance;
- b) Equipment installations, small renovations, utility installations, paving projects will require an Installation Floater Policy. If a determination cannot be made by the Contractor as the type of coverage required, the Contractor shall provide a written request to the Owner for clarification.

- 11.1.8 Proof of Insurance: The Contractor shall maintain the insurance coverage required by this contract (see Section 00 73 16 Insurance Requirements) throughout the term of this contract, and shall furnish the Owner with certificates of insurance which indicate the name of the insurance companies, the NAIC numbers, insured names, producer / agent names, telephone numbers, policy numbers, limits and types of coverage, effective and expiration dates of policies.

The Contractor shall supply the Owner updated replacement certificates not less than thirty days prior to the expiration date or renewal date of any insurance policies reflected on such certificates. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled, or materially altered except proper written notice pursuant Ark. Code Ann. § 23-66-206 has been received by the Owner." The notice to proceed shall not be issued until the insurance certificates have been approved by the Owner.

- 11.1.9 Additional Requirements: All policies shall be provided by insurers qualified to write the respective insurance in the State of Arkansas, and be in such form and include such provision as are generally considered standard provisions for the type of insurance involved. The Contractor will be financially responsible for all deductibles or self-insured retentions.

Equipment and Materials: The Contractor shall be responsible for any loss, damage, or destruction of its own property or that of any Subcontractor's equipment and materials used in conjunction with the Work. The Contractor will purchase at Contractor's own sole costs and expense such policy to cover Contractor's owned property.

Subcontractor's: The Contractor shall require all Subcontractors to provide and maintain general liability, automobile and workers' compensation insurance coverage substantially similar to those required of the Contractor. The Contractor shall require certificates of insurance from all Subcontractors as evidence of coverage. Contractor will be the responsible party for any and all claims by Subcontractors if Subcontractor fails to have appropriate insurance.

11.2 **BONDS**

- 11.2.1 Performance and Payment Bond: The Contractor shall, at the time of execution of the Contract, furnish bonds covering faithful performance of the Contract and the payment of obligations. Performance and Payment bonds, and any amendments thereto, shall be filed with the circuit clerk office in the County Courthouse of the county where the work shall be performed.

ARTICLE 12 -- UNCOVERING AND CORRECTION OF WORK

12.1 **EXAMINATION OF COMPLETED WORK**

- 12.1.1 If any portion of the work should be covered contrary to the request of the Owner, Design Professional, or Inspector or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Owner, Design Professional, or Inspector, be uncovered for his observation and replaced at the Contractor's expense.

12.2 **DEFECTIVE WORK**

- 12.2.1 Defective work, whether through the use of defective materials, the result of poor workmanship, or any other cause, shall be removed within ten days after notice is given by the Owner or Design Professional. The Work and affected materials and equipment shall be removed and replaced as necessary to comply with the Contract Documents without additional cost to the Owner. The fact that the defective work may have been previously overlooked by the Design Professional shall not constitute acceptance.

12.3 **REJECTED MATERIALS**

- 12.3.1 Materials which do not conform to the requirements of the Contract Documents, are not equal to samples approved by the Design Professional, or are in any way unsuited or unsatisfactory for the purpose for which intended, shall be rejected. Defective materials shall be removed within ten days after notice by the Design Professional. The materials shall be replaced with new materials as necessary to comply with the Contract Documents at no additional cost to the Owner. The fact that the defective material may have been previously overlooked by the Design Professional shall not constitute acceptance.
- 12.3.2 Should the Contractor fail to remove and replace rejected material within the specified ten days after written notice to do so, the Owner may remove and replace the material and deduct the cost from the Contract Sum.

12.4 **CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT**

- 12.4.1 The approval of the final Request for Payment by the Design Professional and the making of the Final Payment by the Owner to the Contractor shall not relieve the Contractor of responsibility to correct faulty materials or workmanship promptly after receipt of written notice from the Owner until the end of the Contractor's warranty or performance and payment bond obligations or both. The Owner shall give such notice of faulty materials or workmanship promptly, after discovery of the condition. If the Contractor fails to correct the defects, promptly, after receipt of written notice from Owner, the Owner may have the work corrected at the Contractor's expense.

ARTICLE 13 -- MISCELLANEOUS PROVISIONS

13.1 **GOVERNING LAW**

13.1.1 The Contract shall be governed by the laws and regulations of the STATE OF ARKANSAS. Venue for any administrative action or judicial proceedings shall be Pulaski County, Arkansas. Nothing in these General Conditions shall be construed to waive the sovereign immunity of the STATE OF ARKANSAS or any entities thereof.

13.1.2 The Contractor shall give all notices and comply with all federal, state, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work. The Contractor shall indemnify and save harmless the Owner and DBA against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree whether by himself or his employees.

13.1.3 The Contractor shall comply with the laws of the local, state, and federal government regarding wages and hours of labor.

13.2 **WRITTEN NOTICE**

13.2.1 Consider as served when delivered in person or sent by certified or registered mail to the individual, firm, or corporation or to the last business address of such known to him who serves the notice. Failure to accept or receive the hand delivered, certified, or registered mail does not negate the consideration of serving.

13.2.2 The written Notice to Proceed with the Work shall be issued by the Design Professional after the execution of the Contract by the Owner. The Contractor shall begin and prosecute the Work uninterruptedly in a manner that will complete the Work within the time limits stated in the Contract.

13.3 **TESTS AND INSPECTIONS**

13.3.1 All materials and each and every part of the Work shall be subject at all times to inspection by the Owner, Design Professional, or the Inspector. The Contractor shall be held to the intent of the Contract Documents in regard to quality of materials, equipment, and workmanship, and the diligent execution of the Contract. The inspection may extend to and include plant, shop, or factory inspection of material furnished. The Contractor agrees to allow Federal or State inspectors, acting in an official capacity, to have access to the job site.

13.3.2 The Owner, Design Professional, DBA and the Inspector shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection for ascertaining if the Work as performed is in accordance with the requirements and the Contract Documents.

13.3.3 Inspectors shall only have authority to suspend any work in a life-threatening situation, which is being improperly done, subject to the final decision of the Owner or Design Professional. Inspectors shall have no authority to permit deviations, or to relax provisions of the Contract Documents without the written permission or instruction of the Owner, DBA or Design Professional, or delay the Contractor by failing to work with reasonable promptness.

13.4 **VERBAL AGREEMENTS**

13.4.1 No verbal objection, order, claim, or notice by any of the parties involved to the other parties shall affect or modify any of the terms or obligations contained in the Contract Documents. None of the terms or provisions of the Contract Documents shall be considered waived or modified unless the waiver or modification thereof is in writing, and agreed upon by the parties in the form of a Change Order approved by the Owner, Design Professional, Contractor and DBA, and no evidence shall be introduced in any proceeding of any other waiver or modification.

ARTICLE 14 -- TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 **SUSPENSION OF WORK**

14.1.1 The Work or any portion thereof may be suspended at any time by the Owner provided that the Owner gives the Contractor written notice of the suspension. The notice shall set forth the date on which the Work is to be suspended and the date on which the Work is to be resumed. The Contractor shall resume the Work upon written notice from the Owner within ten days after the date set forth in the notice of suspension.

14.1.2 The Owner will have the authority to suspend the work, wholly or in part, for such period of time as deemed necessary. The suspension may be due to unsuitable weather, or such other conditions as are considered unfavorable for the proper prosecution of the Work, or the failure on the part of the Contractor to fulfill the provisions of the Contract. Failure to supply material, equipment, or workmanship meeting the requirements of the Contract Documents shall be just cause for suspension of the Work. The Contractor shall not have the right to suspend operations without the Design Professional or Owner's permission.

14.2 **TERMINATION BY OWNER FOR CAUSE**

14.2.1 The Owner will have the right to terminate the Contract upon giving ten days written notice of the termination to the Contractor and the Contractor's surety, in the event of any default by the Contractor and upon written notice from the Design Professional to the Owner that sufficient cause exists to justify such action. In the event of termination of the Contract, the Owner may take possession of the Work and of all materials, tools, and equipment and construction equipment and machinery thereon and may finish the work by whatever method he may select. However, Owner will not have the right to terminate without providing Contractor with reasonable opportunity to cure such default to Owner's reasonable satisfaction. If the Owner does not elect to use his own forces, the surety shall furnish a competent licensed contractor within 10 working days from the written notice to the surety.

14.2.2 It shall be considered a default by the Contractor whenever he shall become insolvent; declare bankruptcy assigns assets for the benefit of his creditors; fails to provide qualified superintendence, proper materials, competent Subcontractors, competent workmen; fails to make prompt payments for conforming labor, materials, or equipment; disregards or violates provisions of the Contract Documents; disregards the Owner's, Design Professional's, or DBA instructions; fails to prosecute the Work according to the approved schedule of completion, including extensions thereof as provided for by approved Change Orders; and fails to start the Work on the date established in the Notice to Proceed.

14.3 **TERMINATION BY OWNER FOR CONVENIENCE**

The Owner will have the right to terminate the Contract for Convenience and without cause upon giving ten days written notice of the termination to the Contractor and Contractor's surety and DBA. Once notice is received, the Contractor shall: cease all operations as indicated by the written notice and take necessary actions or at the Owner's direction as indicated by the written notice, for the protection and preservation of the work; and terminate existing Subcontractors and purchase orders upon the effective termination date as indicated in the notice and not enter into any contracts involving Subcontractors or purchase orders.

If the contract is terminated upon the convenience of the Owner, the Contractor is entitled to receive payment for the work executed and accepted by the Owner, and the overhead and profit credit amount of 1% of the work that was left to be performed in the contract unless the termination was due to the Owner's loss of funding in which case no amount for overhead and profit will be credited.

ARTICLE 15 – DISPUTE RESOLUTION

15.1 **CONTRACTUAL DISPUTES**

- 15.1.1 In the event that a dispute, claim or controversy between the Owner and the Contractor arises regarding the requirements of the Contract, the performance of the Work, payment due the Contractor, the terms of any Change Order, or otherwise, the Contractor shall not stop, suspend or delay the Work or any part of the Work to be performed under the Contract, or under any Change Order, or as ordered by the Owner. The Contractor shall continue to diligently prosecute the Work to completion, including work required in any Change Order or as directed by the Owner.

15.2 **MEDIATION**

- 15.2.1 In the event of any dispute regarding the Contractor and the Owner (hereinafter referred to as party/parties for this section only) under this Agreement, the party shall provide written notification to the DBA Construction Section.
- 15.2.2 If the Owner or the Contractor are unable to negotiate a settlement of the dispute amongst themselves, the parties may participate in mediation. Mediation shall be voluntary, non-binding and all proceedings in connection with such shall be subject to this Agreement and applicable provisions of Arkansas law. A request for mediation must be made in writing to the other party and the parties shall agree upon the location of the mediation. A Mediator mutually agreed upon by the parties shall conduct the mediation process. Any mediation fees shall be borne equally between the parties. The parties shall coordinate mediation and the Owner shall notify DBA of any mediation prior to it taking place. DBA Construction Administrator or his designee may view any and all mediation proceedings. Any settlements arising out of the voluntary mediation process must be approved by DBA.
- 15.2.3 Notwithstanding anything to the contrary contained herein, if any dispute arises between the Parties, whether or not it requires at any time the use of dispute resolution procedures described above, in no event, nor for any reason, shall the Contractor, Architect, or Engineer interrupt the provision of services/performance to the Owner, or perform any other action that prevents, slows down, or reduces, in any way, the provisions of the Agreement unless: (a) authority to do so is granted by the Owner and approved by DBA or (b) the Agreement has been terminated by the State. Nothing in these contract documents, including the use of mediation, shall be construed to waive the sovereign immunity of the State of Arkansas or any entities thereof.

15.3 **ARBITRATION**

- 15.3.1 In the event of any dispute regarding the Contractor and the Owner (hereinafter referred to as party/parties for this section only) under this Agreement, the party shall provide written notification to the DBA Construction Section.

- 15.3.2 If the Owner or the Contractor are unable to negotiate a settlement of the dispute amongst themselves, the parties may participate in arbitration. Arbitration shall be voluntary, binding and all proceedings in connection with such shall be subject to this Agreement and applicable provisions of Arkansas law. A request for arbitration must be made in writing to the other party and the parties shall agree upon the Arbitrator, process and procedures and the location of arbitration. Any arbitration fees shall be borne equally between the parties. The parties shall coordinate arbitration and the Owner shall notify DBA of any arbitration prior to it taking place. DBA Construction Administrator or his designee may view any and all arbitration proceedings. Any settlements arising out of the voluntary arbitration process must be approved by DBA.
- 15.3.3 Notwithstanding anything to the contrary contained herein, if any dispute arises between the Parties, whether or not it requires at any time the use of dispute resolution procedures described above, in no event, nor for any reason, shall the Contractor, Architect, or Engineer interrupt the provision of services/performance to the Owner, or perform any other action that prevents, slows down, or reduces, in any way, the provisions of the Agreement unless: (a) authority to do so is granted by the Owner and approved by DBA or (b) the Agreement has been terminated by the State. Any award rendered by the arbitrator shall be final with the approval of DBA. Nothing in these contract documents, including the use of arbitration, shall be construed to waive the sovereign immunity of the State of Arkansas or any entities thereof.

END OF DOCUMENT



THE FOLLOWING INFORMATION IS TO BE INCLUDED IN THE SUPPLEMENT TO THE GENERAL CONDITIONS OF THE PROJECT MANUAL FOR DIVISION BUILDING AUTHORITY REVOLVING LOAN PROJECTS.

1. Insert the current labor rates for the county at the time the project is to be bid. The labor rates can be found at: https://sam.gov/search/?page=1&pageSize=25&sort=-modifiedDate&index=dbra&sfm%5Bstatus%5D%5Bis_active%5D=true
2. Insert the following document:

DIVISION BUILDING AUTHORITY REVOLVING LOAN FUND SUPPLEMENTARY CONDITIONS FOR PROJECTS FUNDED WITH AMERICAN RECOVERY AND REINVESTMENT ACT FUNDS

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1) REPORTING REQUIREMENTS

- a. The bidder is notified that this project will be financed with American Recovery and Reinvestment Act of 2009 (hereinafter, "ARRA" or "Recovery Act") Funds. The contractor shall ensure that all subcontracts and other contracts for goods and services for an ARRA-funded project have the mandated provisions of this directive in their contracts. Pursuant to title XV, Section 1512 of the ARRA, the state shall require that the contractor provide reports and other employment information as evidence to document the number of jobs created or jobs retained by this contract from the contractor's own workforce and any subcontractors. On a regular basis, appropriate documentation must be supplied to satisfy the necessary reporting requirements. It will be the responsibility of the loan recipient to report the information to the state, but the final bidder will have to assist on a regular basis during the construction phase with the collection of the needed information. The state reserves the right to request additional information as necessary if federal guidelines change. No direct payment will be made for providing said reports, as the cost for same shall be included in the various items in the contract.

2) BUY AMERICAN REQUIREMENT UNDER SECTION 1605 OF ARRA: REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS

a. STATUTORY REQUIREMENT

Section 1605 of the Recovery Act prohibits use of recovery funds for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States. The law requires that this prohibition be applied in a manner consistent with U.S. obligations under international agreements, and it provides for a waiver under three circumstances:

- i. Iron, steel, or relevant manufactured goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;
- ii. Inclusion of iron, steel, or manufactured goods produced in the United States will increase the cost of the overall project by more than 25%; or
- iii. Applying the domestic preference would be inconsistent with the public interest.

b. POLICY

Except as provided in (c) or (d):

- i. None of the funds appropriated or otherwise made available by the Recovery Act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless-
 1. The public building or public work is located in the United States; and
 2. All of the iron, steel, and manufactured goods used in the project are produced or manufactured in the United States.
 - a. Production in the United States of the iron or steel used in the project requires that all manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives. These requirements do not apply to iron or steel used as

components or subcomponents of manufactured goods used in the project.

- b. There is no requirement with regard to the origin of components or subcomponents in manufactured goods used in the project, as long as the manufacturing occurs in the United States.

- ii. Paragraph (i) of this section shall not apply where the Recovery Act requires the application of alternative Buy American requirements for iron, steel, and manufactured goods.

c. EXCEPTIONS

- i. When one of the following exception applies in a case or category of cases, the award official may allow the recipient to use foreign iron, steel, and/or manufactured goods in the project without regard to the restrictions of section 1605 of the Recovery Act:

- 1. *Non-availability.* The head of the Federal department or agency may determine (U.S. Department of Education) that the iron, steel, or manufactured good is not produced or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality. The determinations of non-availability of the articles listed at 48 CFR 25.104(a) and the procedures at 48 CFR 25.103 (b) (1) also apply if any of those articles are manufactured goods needed in the project.
- 2. *Unreasonable Cost.* The Federal department or agency (U.S. Department of Education) determines that the cost of domestic iron, steel, or manufactured goods will increase the cost of the overall project by more than 25% in accordance with (f).
- 3. *Inconsistent with Public Interest.* The head of the Federal Department or agency may determine that application of restrictions of section 1605 of the Recovery Act would be inconsistent with the public interest.

- ii. When a determination is made for any of the reasons stated in this section that certain foreign iron, steel, and/or manufactured goods may be used-

- 1. The award official shall list the excepted materials in the award; and
- 2. The head of the Federal department or agency shall publish a notice in the **Federal Register** within two weeks after the determination is made, unless the item has already been determined to be domestically non-available. A list of items that are not domestically available is at 48 CFR 25.104(a).

The **Federal Register** notice or information from the notice may be posted by OMB to Recovery.gov. The notice shall include-

- a. The title "Buy American Exception under the American Recovery and Reinvestment Act of 2009";
- b. The dollar value and brief description of the project; and
- c. A detailed written justification as to why the restriction is being waived.

d. NON-APPLICATION TO ACQUISITIONS COVERED UNDER INTERNATIONAL AGREEMENTS.

Acquisitions covered by international agreements. Section 1605(d) of the Recovery Act provides that the Buy American requirement in section 1605 shall be applied in a manner consistent with U.S. Obligations under international agreements.

- i. The Buy American requirement set out in (b) shall not be applied where the iron, steel, or manufactured goods used in the project are from a Party to an international agreement, listed in paragraph (ii)(2) of this section, and the recipient is required under an international agreement, described in the appendix to this subpart, to treat the goods and services of that Party the same as domestic goods and services. **This obligation shall only apply to projects with an estimated value of \$7,443,000 or more and projects that are not specifically excluded from the application of those agreements.**
- ii. The international agreements that obligate recipients are:
 1. The World Trade Organization Government Procurement Agreement (Aruba, Austria, Belgium, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea (Republic of), Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and United Kingdom);
 2. The following Free Trade Agreements:
 - a. Dominican Republic-Central America-United States Free Trade Agreement (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua);
 - b. North American Free Trade Agreement (NAFTA) (Canada and Mexico);
 - c. United States-Australia Free Trade Agreement;
 - d. United States-Bahrain Free Trade Agreement;
 - e. United States-Chile Free Trade Agreement;
 - f. United States-Israel Free Trade Agreement;
 - g. United States-Morocco Free Trade Agreement;
 - h. United States-Oman Free Trade Agreement;
 - i. United States-Peru Trade Promotion Agreement; and
 - j. United States-Singapore Free Trade Agreement;
 - k. United States-European Communities Exchange of Letters (May 15, 1995): Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, and United Kingdom.

Appendix to Section (d) (i)—

U.S. States, Other Sub-Federal Entities, and Other Entities Subject to U.S. Obligations Under International Agreements States	Entities covered	Exclusions	Relevant international agreements
Arkansas	Executive branch agencies, including universities but excluding the Office of Fish and Game.	construction services	—WTO GPA (except Canada). —DR–CAFTA. —U.S.-Australia FTA. —U.S.-Chile FTA. —U.S.-Morocco FTA. —US.-Peru TPA. —U.S.-Singapore FTA.

- e. **TIMELY DETERMINATION CONCERNING THE INAPPLICABILITY OF SECTION 1605 OF THE RECOVERY ACT**
- i. The head of the Federal department or agency (U.S. Department of Education) involved may make a determination regarding inapplicability of section 1605 to a particular case or to a category of cases.
 - ii. Before Recovery Act funds are awarded by the Federal Agency or obligated by the recipient for a project for the construction, alteration, maintenance, or repair of a public building or public work, an applicant or recipient may request from the award official a determination concerning inapplicability of section 1605 of the Recovery Act for specifically identified items.
 - iii. The time for submitting the request and the information and supporting data that must be included in the request are to be specified in the agency's and recipient's request for applications and/or other written communications. The content of these communications should be consistent with the notice in §176.150 or §176.170 of 2 CFR Part 176, whichever applies.
 - iv. The award official must evaluate all request based on the information provided and may supplement this information with other readily available information.
 - v. In making a determination based on the increased cost to the project of using domestic iron, steel, and/or manufactured goods, the award official must compare the total estimated cost of the project using foreign iron, steel, and/or relevant manufactured goods to the estimated cost if all domestic iron, steel, and/or relevant manufactured goods would increase the cost of the overall project by more than 25%, then the award official shall determine that the cost of the domestic iron, steel, and/or relevant manufactured goods is unreasonable.
- f. **EVALUATING PROPOSALS OF FOREIGN IRON, STEEL, AND/OR MANUFACTURED GOODS**
- i. If the award official receives a request for an exception based on the cost of certain domestic iron, steel, and/or relevant manufactured goods being unreasonable, in accordance with (c) then the award official shall apply evaluation factors to the proposal to use such foreign iron, steel, and/or manufactured goods as follows:
 1. Use an evaluation factor of 25 percent, applied to the total estimated cost of the project, if the foreign iron, steel, and/or manufactured goods are to be used in the project based on an exception for unreasonable cost requested by the applicant.

2. Total evaluated cost=project cost estimate + (.25 x project cost estimate, if paragraph (i) (1) of this section applies).
 - ii. Applicants or recipients also may submit alternate proposals based on the use of equivalent domestic iron, steel, and/or manufactured goods to avoid possible denial of Recovery Act funding for the proposal if the Federal Government determines that an exception permitting use of foreign item(s) does not apply.
 - iii. If the award official makes an award to an applicant that proposed foreign iron, steel, and/or manufactured goods not listed in the applicable notice in the request for applications or proposals, then the award official must add the excepted materials to the list in the award term.
- g. DETERMINATIONS ON LATE REQUESTS
- i. If a recipient requests a determination regarding the inapplicability of section 1605 of the Recovery Act after obligating Recovery Act funds for a project for construction, alteration, maintenance, or repair (late request), the recipient must explain why it could not request the determination before making the obligation or why the need for such determination otherwise was not reasonably foreseeable. If the award official concludes that the recipient should have made the request before making the obligation, the award official may deny the request.
 - ii. The award official must base evaluation of any late request for a determination regarding the inapplicability of section 1605 of the Recovery Act on information required by §176.150(c) and (d) or §176.170(c) and (d) or 2 CFR Part 176 and/or other readily available information.
 - iii. If a determination, under (c) is made after Recovery Act funds were obligated for a project for construction, alteration, maintenance, or repair that an exception to section 1605 of the Recovery Act Applies, the award official must amend the award to allow use of the foreign iron, steel, and/or relevant manufactured goods. When the basis of the exception is no availability or public interest, the amended award shall reflect the adjustment of the award amount, redistribution of budgeted funds, and/or other appropriate actions taken to cover cost associated with acquiring or using the foreign iron, steel, and/or manufactured goods. When the basis for the exception is the unreasonable cost of domestic iron, steel, and/or manufactured goods the award official shall adjust the award amount or the budget, as appropriate, by at least the differential established in (f).
- h. NONCOMPLIANCE
- The award official must:
- i. Review allegations of violations of section 1605 of the Recovery Act;
 - ii. Unless fraud is suspected, notify the recipient of the apparent unauthorized use of foreign iron, steel, and/or manufactured goods and request a reply, to include proposed corrective action; and
 - iii. If the review reveals that a recipient or sub recipient has used foreign iron, steel, and/or manufactured goods without authorization, take appropriate action, including one or more of the following:
 1. Process a determination concerning the inapplicability of section 1605 of the Recovery Act in accordance with §176.120 of 2 CFR Part 176.

2. Consider requiring the removal and replacement of the unauthorized foreign iron, steel, and/or manufactured goods.
 3. If removal and replacement of foreign iron, steel, and/or manufactured goods used in a public building or a public work would be impracticable, cause undue delay, or otherwise be detrimental to the interests of the Federal Government, the award official may determine in writing that the foreign iron, steel, and/or manufactured good does not constitute a determination that an exception to section 1605 of the Recovery Act applies, and this should be stated in the determination. Further, a determination to retain foreign iron, steel, and/or manufactured goods does not affect the Federal Government's right to reduce the amount of the award by the cost of the steel, iron, or manufactured goods that are used in the project or to take enforcement or termination action in accordance with the agency's grants management regulations (EDGAR).
 4. If noncompliance is sufficiently serious, consider exercising appropriate remedies such as withholding cash payments pending correction of the deficiency, suspending or terminating the contract or award, and withholding further awards or contracts for the project. Also consider preparing and forwarding a report to the agency suspending or debarment official in accordance with the agency's debarment rule implementing 2 CFR Part 180. If the noncompliance appears to be fraudulent, refer the matter to other appropriate agency officials, such as the officer responsible for criminal investigation.
- i. AWARD TERM-REQUIRED USE OF AMERICAN IRON, STEEL, AND MANUFACTURED GOODS-SECTION 1605 OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009.
- i. *Definitions.* As used in this specific award term and condition-
 1. *Manufactured good* means a good brought to the construction site for incorporation into the building or work that has been-
 - a. Processed into a specific form and shape; or
 - b. Combined with other raw material that has different properties than the properties of the individual raw materials.
 2. *Public building and public work* means a public building of, and a public work of, a governmental entity (the United States; the District of Columbia; commonwealths, territories, and minor outlying islands of the United States; State and local governments; and multi-State, regional, or interstate entities which have governmental functions). These buildings and works may include without limitation, bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals, and the construction, alteration, maintenance, or repair of such buildings and works.

3. *Steel* means an alloy that includes at least 50% iron, between .02 and 2 percent carbon, and may include other elements.
- ii. *Domestic preference.*
 1. This award term and condition implements Section 1605 of the American Recovery and Reinvestment Act of 2009 (Recovery Act) (Pub. L. 111-5), by requiring that all iron, steel, and manufactured goods used in the project are produced in the United States except as provided in paragraph (ii) (3) and (4) of this section and condition.
 2. This requirement does not apply to the material listed by the Federal Government as follows: **NONE**
 3. The award official may add other iron, steel The award official may add other iron, steel, and/or other manufactured goods to the list in paragraph (ii)(2) of this term and condition if the Federal Government determines that-
 - a. The cost of the domestic iron, steel, and/or manufactured goods would be unreasonable. The cost of domestic iron, steel, or manufactured goods used in the project is unreasonable when the cumulative cost of such material will increase the cost of the overall project by more than 25 percent;
 - b. The iron, steel, and/or manufactured goods is not produced or manufactured in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
 - c. The application of the restriction of section 1605 of the Recovery Act would be inconsistent with the public interest.
 - iii. *Request for determination of inapplicability of Section 1605 of the Recovery Act.*
 1.
 - a. Any recipient request to use foreign iron, steel, and/or manufactured goods in accordance with paragraph (ii) (3) of this section shall include adequate information for Federal Government evaluation of the request, including-
 - i. A description of the foreign and domestic, iron, steel, and/or manufactured goods;
 - ii. Unit of measure;
 - iii. Quantity;
 - iv. Cost;
 - v. Time of delivery or availability;
 - vi. Location of the Project;
 - vii. Name and address of the proposed supplier; and
 - viii. A detailed justification of the reason for use of foreign iron, steel, and/or manufactured goods cited in accordance with paragraph (ii) (3) of this section.
 - b. A request based on unreasonable cost shall include a reasonable survey of the market and a completed cost

- comparison table in the format in paragraph (iv) of this section.
- c. The cost of iron, steel, and/or manufactured good shall include all delivery costs to the construction site and any applicable duty.
 - d. Any recipient request for a determination submitted after Recovery Act funds have been obligated for a project for construction, alteration, maintenance, or repair shall explain why the recipient could not reasonably foresee the need for such determination and could not have requested the determination before the funds were obligated. If the recipient does not submit a satisfactory explanation, the award official need not make a determination.
2. If the Federal Government determines after the funds have been obligated for a project for construction, alteration, maintenance, or repair that an exception to section 1605 of the Recovery Act applies, the award official will amend the award to allow use of the foreign iron, steel, and/or relevant manufactured goods. When the basis for the exception is non-availability or public interest, the amended award shall reflect adjustment of the award amount, redistribution of budgeted funds, and/or other actions taken to cover costs associated with acquiring or using the foreign iron, steel, and/or relevant manufactured goods. When the basis for the exception is the unreasonable cost of the domestic iron, steel, or manufactured goods, the award official shall adjust the award amount or redistribute budgeted funds by at least the differential established in 2 CFR 176.110(a).
 3. Unless the Federal Government determines that an exception to section 1605 of the Recovery Act applies, use of foreign iron, steel, and/or manufactured goods is noncompliant with section 1605 of the American Recovery and Reinvestment Act.
- iv. *Data.* To permit evaluation of requests under paragraph (b) of this section based on unreasonable cost, the Recipient shall include the following information and any applicable supporting data based on the survey of suppliers:

FOREIGN AND DOMESTIC ITEMS COST COMPARISON

Description	Unit of measure	Quantity	Cost (dollars)*
Item 1:			
Foreign steel, iron, or manufactured good.....			
Domestic steel, iron, or manufactured good.....			
Item 2:			
Foreign steel, iron, or manufactured good.....			
Domestic steel, iron, or manufactured good.....			

[List name, address, telephone number, email address, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.] [Include other applicable supporting information.]
*[*Include all delivery costs to the construction site.]*

3) LABOR STANDARDS

- A. Included in this project is the Davis Bacon Federal Wages that will be applicable for this project. <https://sam.gov/>
- B. Davis-Bacon Act (DBA) Guidance For Projects
 - 1. Section 1606 of the Recovery Act requires that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the Recovery Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of Chapter 31 of title 40, United States Code.
 - 2. Reorganization Plan: Under Reorganization Plan No. 14 of 1950, (5 U.S.C.A. Appendix), the federal contracting or assistance-administering agencies have day-to-day responsibility for administration and enforcement of the Davis-Bacon labor standards provisions and, in order to promote consistent and effective enforcement, the Department of Labor has regulatory and oversight authority, including the authority to investigate compliance.
 - 3. Davis-Bacon and Related Acts (DBRA) require payment of prevailing wages on federally funded or assisted construction projects.
 - 4. The DBA applies to each RLF funded contract in excess of \$2,000 for the construction, alteration, or repair (including painting and decorating) of buildings.
 - 5. DBA contract clauses are found in 29 CFR 5.5 and related definitions are found in 29 CFR 5.2.
 - 6. The Contractor shall classify any class of service employee which is not listed in the wage determination therein and which is to be employed under the Contract (i.e., the Work to be performed is not performed by any classification listed in the wage determination) so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed class of employees shall be paid the monetary wages and furnished the fringe benefits as are determined pursuant to the procedures this Section.
 - a. This conforming procedure shall be initiated in the Contractor prior to the performance of Work by the unlisted class of employee. The Contractor shall submit Standard Form (SF) 1444. Request for Authorization of Additional Classification and Rate, to the Owner no later than 30 days after the unlisted class of employee performs any Work. The owner shall review the proposed classification and data and promptly submit the completed SF 1444 (which must include information regarding the agreement or disagreement of the employees' authorized representatives or the employees themselves together with the agency recommendation), and all pertinent information to the Wage and Hour Division, Employment Standards Administration. U.S. Department of Labor. The Wage and Hour Division will approve, modify or disapprove the action or render a final determination in the event of disagreement within 30 days of receipt or will notify the Owner within 30 days of receipt that additional time is necessary. Link to SF 1444: [Standard Form 1444 - Request for Authorization of Additional Classification and Rate](#) .
 - b. The final determination of the conformance action by the Wage and Hour Division shall be transmitted to the Owner who shall promptly notify the Contractor of the action taken. Each affected employee shall be furnished by the Contractor with a

written copy of such determination or it shall be posted as a part of the wage determination.

- c. In the case of a contract modification, an exercise of an option or extension of an existing contract, or in any other case where a Contractor succeeds a contract under which the classification in question was previously conformed pursuant to this Section. A new conformed wage rate and fringe benefits may be assigned to the conformed classification by indexing (i.e. adjusting) the previous conformed rate and fringe benefits by an amount equal to the average (mean) percentage increase (or decrease, where appropriate) between the wages and fringe benefits specified for all classifications
- d. to be used on the Contract which are listed in the current wage determination and those specified for the corresponding classifications in the previously applicable wage determination. Where conforming actions are accomplished in accordance with these Sections prior to the performance of Work by the unlisted class of employees, the
- e. Contractor shall advise the Owner of the action taken but the other procedures in this Section need not be followed. No employee engaged in performing Work shall in any event be paid less than the currently applicable minimum wage specified under section (6)(a)(1) of the Fair Labor Standards Act of 1938, as amended.

7. Withholding: The Owner shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this Contract, or any other Federal contract with the same Contractor, or any other Federal assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the Work, all or part of the wages required by the Contract, the Owner may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

8. During Construction:

- a. Post the Davis Bacon Poster on the Project site in a clearly visible location protected from the weather. Link to Poster: <https://www.dol.gov/agencies/whd/posters/dbra>.
- b. Post the wage determination at the Project site in a clearly visible location protected from the weather.

9. Payrolls and Basic Records

- a. Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the Work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1 (b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the

plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. If the Contractor employs apprentice's or trainees under an approved program, the Contractor shall maintain written evidence of the registration and apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- b. The Contractor shall submit weekly for each week in which any work is performed a copy of all payrolls to the Owner/Designated Representative. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under this Section. This Information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be assessed at the following link: <http://www.dol.gov/whd/forms/wh347.pdf>. The Contractor is responsible for the submission of copies of payrolls by Subcontractors.
- c. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or Subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract, which shall certify the following:
 - (1) That the payroll for the payroll period contains the information required to be maintained under this Section and such information is correct and complete;
 - (2) That each laborer or mechanic including each helper, apprentice, and trainee employed on the Contract during the payroll period has been paid the full weekly wages earned. Without rebate, either directly or indirectly, and that no deductions as set forth in
 - (3) the Regulations, 29 CFR Part 3; and
 - (4) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of Work performed, as specified in the applicable wage determination Incorporated in the contract.
- d. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by this Section.
- e. The falsification of any of the above certifications may subject the Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- f. The Contractor or Subcontractor shall make the records required under this Section available for inspection, copying, or transcription by the Owner or authorized representatives of the Owner or the Department of Labor. The Contractor or Subcontractor shall permit the Owner or representatives of the Owner or the Department of Labor to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records or to make them available, the Owner may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

10. Apprentices and Trainees

a. Apprentices

1. Apprentices will be permitted to work at less than the predetermined rate for the Work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

2. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

3. In addition, any apprentice performing Work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the Work actually performed. Where the Contractor is performing construction on a Project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination.

4. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

b. Trainees

1. Except as provided in 29 CFR 5.18, trainees will not be permitted to work at less than the predetermined rate for the Work performed unless they are employed pursuant to and individually registered in a program which has received prior approval evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the Job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the Journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in

the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman's wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination or the classification of Work actually performed. In addition, any trainee performing Work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the Work actually performed. In the event the Employment and Training Administration withdraw approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the Work performed until an acceptable program is approved.

2. Equal Employment Opportunity: The utilization of apprentices, trainees and journeymen under this Contract shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR Part 30.

C. Contract Work Hours and Safety Standards Act (CWHSSA)

1. The Wage and Hour Division (WHD) of the Employment Standards Administration (ESA) within the U.S. Department of Labor (DOL) enforces the compensation requirements of this Act, while DOL's Occupational Safety and Health Administration (OSHA) enforces the safety and health requirements.

2. As used in this Section, the terms "laborers" and "mechanics" include watchmen and guards.

3. Overtime Requirements. No Contractor or Subcontractor contracting for any part of the Work which may require or involve the employment of laborers or mechanics (see Federal Acquisition Regulation (FAR) 22.300) shall require or permit any such laborer or mechanic in any workweek in which the Individual is employed on such Work to work in excess of 40 hours in such a workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

4. Violation: Liability for Unpaid Wages; liquidated Damages. In the event of any violation of this Section the Contractor and any Subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, employed in violation of this Section in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by this Section.

5. Withholding for Unpaid Wages and Liquidated Damages. The Owner shall upon the Owner's own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any money payable on account of Work performed by the Contractor or Subcontractor under any such Contract or any other Federal contract with the same Contractor or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in this Section.

6. Subcontracts: The Contractor or Subcontractor shall insert in any subcontracts exceeding \$100,000 the provision set forth in this Section and also a provision requiring the Subcontractors to include these provisions in any sub-subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or Sub-subcontractor with the provisions set forth in these Sections.

D. Copeland "Anti-Kickback" Act

1. The Copeland Act prohibits contractors from in any way inducing an employee to give up any part of the compensation to which he or she is entitled under his or her contract of employment, and requires contractors to submit a weekly statement of the wages paid to each employee performing DBRA covered work.

2. Compliance with Copeland Act Requirements: The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

1. The Contractor shall insert in any subcontracts the provisions contained in these Sections and such other provisions as the Owner may be appropriate instructions require, and also a provision requiring Subcontractors to include these provisions in any sub-subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or Sub-subcontractor with these Sections.

2. Within 14 days after award of the Contract, the Contractor shall deliver to the Owner a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the Subcontractor's signed and dated acknowledgement that the provisions required by this Section has been included in the subcontract. Link to SF 1413:

<https://www.gsa.gov/reference/forms/statement-and-acknowledgment>

3. Within 14 days after the award of any subsequently awarded subcontract, the Contractor shall deliver to the Owner an updated and completed SF 1413 for such additional subcontract.

F. Compliance with Davis-Bacon and Related Act Requirements: All rulings and interpretations of the Davis-Bacon and Related Acts contained In 29 CFR Parts 1, 3, and 5 are incorporated by reference in this Contract.

G. Contract Termination: Debarment: A breach of the contract provisions contained in these Sections may be grounds for termination of the Contract, and for debarment as a Contractor and Subcontractor as provided in 29 CFR 5.12.

H. Disputes Concerning Labor Standards: Disputes concerning labor standards requirements shall be resolved In accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7 and not the dispute resolution provisions of this Contract. Disputes within the meaning of this Section shall include disputes between the Contractor (or any of its subcontractors) and the Owner, the U.S. Department at Labor, or the employees or their representatives.

I. Certification of Eligibility

1. By entering into this Contract, the Contractor certifies that neither the Contractor nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 39 CFR 5.12(a)(1).

2. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1). The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

3. All contractors and subcontractors must maintain an active registration in the federal System for Award Management (SAM) in order for the Owner to issue any payments. Registration requires obtaining a Unique Entity Identifier (UEI) and completing all required representations and certifications within SAM. Each contractor and subcontractor shall submit documentation showing their UEI and active SAM registration status, including the registration expiration date, prior to or with the first pay request. Failure to maintain an active SAM registration may result in delayed payment. Online UEI registration is available at: <https://www.uscontractorregistration.com/>

4) REQUIREMENT TO COMPLY WITH PROVISION OF SECTION 902

Section 902 of the ARRA requires that each contract awarded using ARRA funds must include a provision that provides the U.S. Comptroller General and his representatives with the authority to:

- A. Examine any records of the contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and
- B. Interview any officer or employee of the contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions. Accordingly, the Comptroller General and his representatives shall have the authority and rights prescribed under Section 902 of the ARRA with respect to contracts funded with recovery funds made available under the ARRA. Section 902 further states that nothing in 902 shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

5) REQUIRED WHISTLEBLOWER PROTECTION ACT UNDER SECTION 1553

Section 1553 of Division A, Title XV of the American Recovery and Reinvestment Act of 2009, P.L. 111-5, provides protections for certain individuals who make specified disclosures relating to recovery Act funds. Any non-federal employer receiving recovery funds is required to post a notice of the rights and remedies provided under this section of the Act. The contractor agrees that both it and its subcontractors shall comply with section 1553 of the ARRA, which prohibits fund recipients from discharging, demoting or otherwise discriminating against an employee for disclosures by the employee that the employee reasonable believes are evidence of (1) gross mismanagement of a grant relating to ARRA funds; (2) a gross waste of ARRA funds; (3) a substantial and specific danger to public health or safety related to the implementation or use of ARRA funds; (4) an abuse of authority related to implementation or use of ARRA funds, or (5) a violation of law, rule, or regulation related to an agency grant (including the competition for a negotiation of a grant) awarded or issued relating to ARRA funds. Contractor agrees that it and its subcontractors shall post notice of the rights and remedies available to employees under section 1553 of Title XV of Division A of the ARRA. An example poster can be found at the following website: <http://www.recovery.gov/sites/default/files/Whistleblower+poster.pdf> Notation stating "Report information concerning fraud, waste, and abuse to <http://recovery.arkansas.gov/fraud.php>," should be included on the posting.

6) REQUIRED PROVISION NOTING AUTHORITY OF INSPECTOR GENERAL IN SECTION 1515

Section 1515(a) of the ARRA provides authority for any representatives of the United States Inspector General to examine any records or interview any employee or officers working on this

contract. Section 1515(b) further provides that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of an Inspector General.

7) CONFLICT OF INTEREST

The contractor will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

8) LEAD-BASED PAINT

The Contractor will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

9) NON-DISCRIMINATION

The Contractor will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

10) HATCH ACT

The Contractor will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

11) FLOOD INSURANCE

The Contractor will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.

12) ENVIRONMENTAL STANDARDS

Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating

facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

13) WILD AND SCENIC RIVERS ACT

The Contractor will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

14) NATIONAL HISTORIC PRESERVATION ACT

The Contractor will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

15) BYRD ANTI-LOBBYING AMENDMENT

Contractors who apply or bid for an award of \$100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. The disclosures are forwarded from tier to tier up to the recipient.

16) DEBARMENT AND SUSPENSION

No contract may be made to parties listed on the General Services Administration's List of Parties Excluded from Federal Procurement or Non procurement Programs in accordance with E.O. 12549 and E.O. 12689—Debarment and Suspension. This list contains the names of parties debarred, suspended, or otherwise excluded by agencies, and contractors declared ineligible under statutory or regulatory authority other than E.O. 12549.

17) SAFETY AND HEALTH STANDARDS

In planning for and designing facilities, the Contractor shall observe:

- a. The standards under the Occupational Safety and Health Act of 1970 (Pub. L. 91-576) (See 36 CFR part 1910); and
- b. State and local codes, to the extent that they are more stringent.

18) COMPLETING THE CONSTRUCTION

The Contractor will complete its construction in a reasonable time and in accordance with the application and approved plans and specifications. (Authority: 20 U.S.C. 1221e-3 and 3474).

19) FALSE CLAIMS ACT

The contractor agrees that it shall promptly report and credible evidence that a principle, employee, agent, subcontractor or other person has committed a false claim under the **False Claim Act** or has committed a criminal or civil violation of laws pertaining to fraud, conflict of Interest, bribery, gratuity, or similar misconduct involving those funds to the following State of Arkansas website: <http://recovery.arkansas.gov/fraud.php>.

20) ALL OTHER APPLICABLE REQUIREMENTS

The Contractor will comply with all applicable requirements of all other Federal, State, and Local laws, executive orders, regulations, and policies governing this program.

21) WAGE & HOUR DIVISION – INSTRUCTIONS FOR COMPLETING PAYROLL FORM WH-347

WH-347 (PDF): <http://www.dol.gov/whd/forms/wh347.pdf>
http://recovery.arkansas.gov/ade/pdf/certified_payroll_062410.pdf

Note: In order to view, fill out, and print PDF forms, you need Adobe Acrobat Reader version 5 or later, which you may download for free at www.adobe.com/products/acrobat/rwreadstep2.html. To save the completed forms on your work station, you need to use the “Save As” method to save a file. For example, move your mouse cursor over the PDF link and click on your “Right” mouse button. This will cause a menu to be displayed, from which you will select the proper save option—depending upon which browser you are using:

- For Microsoft IE users, select “Save Target As”
- For Netscape Navigator users, select “Save Link As”

Once you have selected the proper save option for your browser, and have saved the file to a location you specified, go to your program menu and start the Adobe Acrobat Reader. Once open, locate the PDF file you saved and open it directly in Acrobat.

General: Form WH-347 has been made available for the convenience of contractors and subcontractors required by their federal or federally-aided construction-type contracts and subcontracts to submit weekly payrolls. Properly filled out, this form will satisfy the requirements of regulations, Parts 3 and 5 (29 C.F.R., subtitle A), as to payrolls submitted in connection with contracts subject to the Davis-Bacon and related acts.

While completion of form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§3.3, 5.5(a) the Copeland Act requires contractors and subcontractors performing work on federally financed or assisted construction contracts to “furnish weekly a statement with respect to the wages paid each employee during the preceding week” U.S. Department of Labor (DOL) regulations at 29 C.F.R. require contracts to submit weekly a copy of all payrolls to the federal agency contracting for or financing the construction project, accompanied by a signed “Statement of Compliance” indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Under the Davis-Bacon and related acts, the contractor is required to pay not less than prevailing wage, including fringe benefits, as predetermined by the department of Labor. The contractor’s obligation to pay fringe benefits may be met either by payment of the fringe

benefits to bona fide benefit plans, funds or programs or by making payments to the covered workers (laborers, and mechanics) as cash in lieu of fringe benefits.

This payroll provides for the contractor to show on the face of the payroll all monies to each worker, whether as basic rates or as cash in lieu of fringe benefits, and provides for the contractor's representation in the statement of compliance on the payroll (as shown on page 2) that he/she is paying fringe benefits required by the contract and not paid as cash in lieu of fringe benefits. Detailed instructions concerning the preparation of the payroll follow:

Contractor or Subcontractor: Fill in your name and check appropriate box.

Address: Fill in the firms address

Payroll No: Beginning with the number 1, list the payroll number for the submission.

For Week Ending: List the work week ending date.

Project and Location: Self-explanatory.

Project and Contract No.: Self-explanatory

Column 1- Name and individual Identifying number of worker: Enter each worker's full name and an individual identifying number on each weekly payroll submitted.

Column 2- No of Withholding Exceptions: This column is merely inserted for the employer's convenience and is not a requirement of regulations, Part 3 and 5.

Column 3- Work Classifications: List classification descriptive of work actually performed by each laborer or mechanic. Consult classification and minimum wage schedule set forth in contract specifications. If additional classifications are deemed necessary, see Contracting Officer or Agency representative. An individual may be shown as having worked in more than one classification provided an accurate breakdown or hours worked in each classification is maintained and shown on the submitted payroll by use of separate entries.

Column 4- Hours worked: List the day and date and straight time and overtime hours worked in the applicable boxes. On all contracts subject to the **contract work hours standard act**, enter hours worked in excess of 40 hours a week as "overtime".

Column 5- Total: Self-explanatory

Column 6- Rate of Pay (Include Fringe Benefits): In the "straight time" box for each worker, list the actual hourly rate paid for straight time worked, plus cash paid in lieu of fringe benefits paid. When recording the straight time hourly rate, any cash paid in lieu of fringe benefits may be shown separately from the base rate. For example, "\$12.25/.40" would reflect a \$12.25 base hourly rate plus \$.40 for fringe benefits. This is of assistance in correctly computing overtime. See "Fringe Benefits" below. When overtime is worked, show the overtime hourly rate paid plus any cash in lieu of fringe benefits paid in the "overtime" box for each worker; otherwise, you

may skip this box. See “Fringe Benefits” below. Payment of not less than time and one-half the basic or regular rate paid is required for overtime under the Contract Work Hours Standard Act of 1962 if the prime contract exceeds \$100,000.00. In addition to pay no less than the predetermined rate for the classification which an individual works, the contractor must pay amounts predetermined as fringe benefits in the wage decision made part of the contract to approve fringe benefits plans, funds or programs or shall pay as cash in lieu of fringe benefits. See “Fringe Benefits” below.

Column 7- Gross Amount earned: Enter amount earned on this project. If part of a worker’s weekly wage was earned on projects other than the project described on this payroll, enter in column 7 first the amount earned on the federal or federally assisted project and then the gross amount earned during the week on all projects, thus “\$163.00/\$420.00” would reflect the earnings of a worker who earned \$163.00 on a federally assisted construction project during a week in which \$420.00 was earned on all work.

Column 8- Deductions: Five columns are provided for showing deductions made. If more than five deductions are involved, use the first four columns and show the balance deductions under “Other” column; show actual total under “Total Deductions” column; and in the attachment to the payroll describe the deduction(s) contained in the “Other” column. All deductions must be in accordance with the provisions of the Copeland Act Regulations, 29 C.F.R., part 3. If an individual worked on other jobs in addition to this project, show actual deductions from his/her weekly gross wage, and indicate that deductions are based on his gross wages.

Column 9- Net wages paid for week: Self-explanatory.

Totals- Space has been left at the bottom of the columns so that totals may be shown if the contractor so desires.

Statement Required by Regulation, Part 3 and 5: While the “statement of compliance” need not be notarized, the statement (on page 2 of payroll form) is subject to the penalties provided by 18 U.S.C SS 1001, namely a fine, possible imprisonment of not more than 5 years, or both. Accordingly, the party signing this statement should have knowledge of the facts represented as true.

Item 1 and 2: Space has been provided between items (1) and (2) of the statement for describing any deduction made. If all deductions made are adequately described in the “deductions” column above, state, “See Deductions column in this payroll”. See “**FRINGE BENEFITS**” instructions concerning filling out paragraph 4 of the statement.

Item 4 Fringe Benefits- Contractors who pay no fringe benefits: If paying all fringe benefits to approved plans, funds, or programs in amounts not less than were determined in the applicable wage decision of the Secretary of Labor, show the basic cash hourly rate and overtime rate paid to each worker on the face of the payroll and check paragraph 4(a) of the statement on page 2 of the WH-347 payroll form to indicate the payment. Note any exceptions in section 4(c).

Contractors who pay no fringe benefits: if not paying all fringe benefits to approved plans, funds, or programs in amounts of at least those that were determined to the applicable wage

decision of the Secretary of Labor, pay any remaining fringe benefit amount to each laborer and mechanic and insert in the “Straight Time” of the “Rate of Pay” column of the payroll an amount not less than the determined rate for each classification plus the amount of fringe benefits determined for each classification in the application wage decision. In as much as it is not necessary to pay time and a half on cash paid in lieu of fringe benefits, the overtime rate shall be no less than the sum of the basic predetermined rate, plus the half time premium on basic or regular rate, plus the required cash in lieu of fringe benefits at the straight time rate. In addition, check paragraph 4(b) of the statement on page 2 the payroll form to indicate the payment of fringes benefits in cash directly to the workers. Note any exception in section 4(c).

Use of section 4(c), Exceptions: Any contractor who is making payment to approved plans, funds, or programs in amounts less than the wage determination requires is obligated to pay the deficiency directly to the covered worker as cash in lieu of fringe benefits. Enter any exceptions to section 4(a) or 4(b) in section 4(c). Enter in the exception column the craft, and enter in the explanation column the hourly amount paid each worker as cash in lieu of fringe benefits and the hourly amount paid to plans, funds, or programs as fringe benefits. The contractor must pay an amount not less than the predetermined rate plus cash in lieu of fringe benefits as shown in section 4(c) to each such individual for all hours worked (unless otherwise provided by applicable wage determination) on the federal or federally assisted project. Enter the rate paid and amount of cash paid in lieu of fringe benefits per hour in column 6 on the payroll. See paragraph on “Contractors who pay no fringe benefits” for computation of overtime rate.

22) ARKANSAS AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 SIGNAGE GUIDANCE

a. SIGN PLACEMENT: ARRA signage is required to be a part of the Construction project. The sign should be durable, waterproof and placed at the worksite outside of the building. This sign should be visible to those who regularly pass by the site. The following sign is an example of what should be on site. The School or Agency Logo would go in the center of the sign.



b. SIGN MATERIALS: There are no specific material requirements, but the signage should be waterproof and durable if posted outside. Contractors will need to include signage cost in their contracts.

c. LENGTH OF TIME SIGNAGE SHOULD REMAIN POSTED: Signs and Posters should be posted when the project starts and at a minimum, should remain up until the projects are complete.

23) WEBSITES FOR FORMS, SIGNS, AND POSTERS

- a. Certified payroll form and statement of compliance (wh-347):
<http://www.dol.gov/whd/forms/wh347.pdf>
- b. SF 1444 request for authorization of additional classification and rate (conformance):
[Standard Form 1444 - Request for Authorization of Additional Classification and Rate](#)
- c. Employee rights under the fair labor standards act poster:
[Employee Rights Under the Fair Labor Standards Act](#)
- d. Employee rights under the Davis-Bacon Act poster:
<http://www.dol.gov/whd/regs/compliance/posters/fedprojc.pdf>
- e. Arkansas Whistleblower Protection poster:
<https://arklegaudit.gov/docs/Whistleblower%20Act%20Poster.pdf>
- f. Equal Opportunity Employment poster:
http://recovery.arkansas.gov/ade/pdf/poster_equal_opportunity_2004.pdf
- g. Recovery Act Fraud Hotline poster:
http://recovery.arkansas.gov/ade/pdf/poster_fraud_100609.pdf

24) WASTE STREAM MANAGEMENT

The contractor will create or obtain a Waste Management Plan addressing waste generated by a proposed Project prior to the Project generating waste. This waste management plan will describe the contractor's plan to dispose of any sanitary or hazardous waste (e.g., construction and demolition debris, old light bulbs, lead ballasts, piping, roofing material, discarded equipment, debris, and asbestos) generated as a result of the proposed Project. The contractor will maintain this Waste Stream Management Plan during the project and will submit a copy to the owner as part of the close out documents. The contractor will insure that all sub-contractors are included in this Waste Stream Management Plan. The contractor shall ensure that the Project is in compliance with all Federal, state and local regulations for waste disposal. The contractor shall make the waste management plan and related documentation available to ABA on ABA's request (for example, during a post-award audit). For the convenience of the contractor a Waste Stream Management Plan form is included in this Supplementary Conditions for the Project.

25) PRESS RELEASES

Contractor agrees to receive approval from the Arkansas Office of Recovery and Reinvestment for all public notices, press releases, and printed materials created to inform the public of a program or project relating to ARRA funds prior to release, and that **signage identifying the program or project shall be placed on site.**

26) PUBLICATIONS

An application may contain technical data and other data, including trade secrets and/or

privileged or confidential information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than the application. To protect such data, the applicant should specifically identify each page including each line or paragraph thereof containing the data to be protected and mark the cover sheet of the application with the following Notice as well as referring to the Notice on each page to which the Notice applies:

Notice of Restriction on Disclosure and Use of Data

Any data submitted that is exempted from the Arkansas Freedom of Information Act such as trade secrets shall be used or disclosed only for evaluation purposes, provided the recipient receives a loan award as a result of or in connection with the submission of the loan application. DOE shall have the right to use or disclose the data here to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the recipient.

Information about the ARRA funded loan will be published on the Internet and linked to the website www.recovery.gov, maintained by the Accountability and Transparency Board. The Board may exclude posting contractual or other information on the website on a case-by-case basis when necessary to protect national security or to protect information that is not subject to disclosure under sections 552 and 552a of title 5, United States Code.

27) FORMS: The following forms are included in this Supplementary Conditions for the contractors / subcontractors convenience:

1. Waste Stream Audit Form
2. WH 347 Certified Payroll Form with Certification Page
3. Sample WH 247 Certified Payroll Form with explanations
4. Buy American Certification Form
5. Poster – "EMPLOYEE RIGHTS UNDER THE DAVIS –BACON ACT"
6. Poster – "Know Your Rights Under the Recovery Act!"
7. SF1444 request for authorization of additional classification & rate (conformance) Form

Insurance Requirements
Section 00 73 16 / Rev: August 2025

Article 11 - Insurance and Bonds

(see General Conditions Article 11 for additional information)

- 1) Subparagraph 11.1.1, add the following sentence:

The amount of such insurance shall be not less than the following or any limits required by law.

- 2) Subparagraph 11.1.2, add the following clause:

11.1.2.1 Workers' Compensation

a. State	<u>Statutory</u>
b. Applicable Federal	<u>Statutory</u>
c. Employers' Liability	
	Per Accident: <u>\$100,000</u>
	Disease, Policy Limit: <u>\$500,000</u>
	Disease, Each Employee: <u>\$100,000</u>

- 3) Subparagraph 11.1.3, add the following clause:

11.1.3.1 Commercial General Liability

General Aggregate:	Per Project Aggregate: <u>\$2,000,000</u>
Completed Operations: (to be maintained for one year after final payment)	Aggregate: <u>\$1,000,000</u>
Personal Injury:	Each Occurrence: <u>\$1,000,000</u>
Each Occurrence Limit:	Each Occurrence: <u>\$1,000,000</u>

- 4) Subparagraph 11.1.4, add the following clause:

11.1.4.1 Automobile Liability: (including, non-owned and hired vehicles)	Combined Single Limit: <u>\$1,000,000</u>
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- 5) Subparagraph 11.1.5, add the following clause:

11.1.5.1 Umbrella Liability:	Each Occurrence: <u>\$1,000,000</u>
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- 6) Subparagraph 11.1.6, add the following clause:

11.1.6.1 Pollution Liability:	Per Loss: <u>N/A</u>
	Aggregate: <u>\$0</u>

- 7) Subparagraph 11.1.7, add the following clause:

11.1.7.1 Builder's Risk or Installation Floater Policy:	<u>\$ = Contract Amount</u>
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- 8) Contractor shall deliver to the Owner a copy of each Insurance certificate and any other requested supporting document for the Owners review and approval prior to the issuance of the Notice to Proceed and any work being performed.

Please Note: Policy Certificates of Insurance shall state "The insurance covered by this certificate will not be cancelled, or materially altered except after proper written notice pursuant Ark. Code Ann. § 23-66-206 has been received by the Owner."

End of Document

Wage Rate Requirements
Section 00 73 43 / Rev: August 2025

AR20260032

A) The Contractor agrees to pay all prevailing hourly wage rates as mandated by the Davis-Bacon Wage Rates and any other applicable Federal Regulations. See attached Wage Rates.

B) The Contractor is responsible for completing and returning any reports or forms mandated by the applicable federal regulations from the U.S. Department of Labor. See attached reference.

State: Arkansas

Construction Types: Building

Counties: Arkansas Counties of
Pulaski

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

BOIL0069-002 01/01/2025		
	Rates	Fringes
BOILERMAKER.....	\$ 34.21	23.92

CARP0216-003 07/01/2024		
	Rates	Fringes
MILLWRIGHT.....	\$ 34.02	11.88

ELEC0295-010 01/01/2024		
	Rates	Fringes
ELECTRICIAN (INCLUDES LOW VOLTAGE WIRING).....	\$ 28.94	14.95

PAIN0424-010 07/01/2021		
	Rates	Fringes
PAINTER (BRUSH, ROLLER, AND SPRAY, EXCLUDES DRYWALL FINISHING/TAPING).....	\$ 16.25	10.42

PLUM0155-014 08/01/2025		
	Rates	Fringes
PLUMBER (INCLUDES HVAC PIPE INSTALLATION).....	\$ 34.41	15.70

PLUM0155-016 08/01/2025		
	Rates	Fringes
PIPEFITTER (EXCLUDES HVAC PIPE INSTALLATION).....	\$ 34.41	15.70

	Rates	Fringes
SHEET METAL WORKER (INCLUDES HVAC DUCT INSTALLATION).....	\$ 26.99	15.67

SUAR2015-029 01/09/2017

	Rates	Fringes
TRUCK DRIVER: DUMP TRUCK.....	\$ 13.80	0.71
SPRINKLER FITTER (FIRE SPRINKLERS).....	\$ 23.56	2.77
ROOFER.....	\$ 15.39	0.00
OPERATOR: ROLLER.....	\$ 14.78	0.00
OPERATOR: PAVER (ASPHALT, AGGREGATE, AND CONCRETE).....	\$ 23.75	0.00
OPERATOR: GRADER/BLADE.....	\$ 14.66	0.00
OPERATOR: CRANE.....	\$ 17.52	0.00
OPERATOR: BULLDOZER.....	\$ 16.74	0.00
OPERATOR: BACKHOE/EXCAVATOR/TRACKHOE.....	\$ 28.21	0.00
LABORER: PIPELAYER.....	\$ 14.00	0.00
LABORER: MASON TENDER - BRICK.....	\$ 12.37	0.00
LABORER: COMMON OR GENERAL.....	\$ 12.85	0.00
IRONWORKER, STRUCTURAL.....	\$ 19.84	0.00
IRONWORKER, REINFORCING.....	\$ 14.00	0.00
INSULATOR - MECHANICAL (DUCT, PIPE & MECHANICAL SYSTEM INSULATION).....	\$ 17.16	4.76
DRYWALL FINISHER/TAPER.....	\$ 15.38	0.00
CEMENT MASON/CONCRETE FINISHER.....	\$ 19.91	3.30
CARPENTER, INCLUDES ACOUSTICAL CEILING INSTALLATION, AND DRYWALL HANGING.....	\$ 17.51	2.26
BRICKLAYER.....	\$ 20.37	3.77

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

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>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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

"

Contract and Grant Disclosure and Certification Form

Failure to complete all of the following information may result in a delay in obtaining a contract, lease, purchase agreement, or grant award with any Arkansas State Agency

Subcontractor Name: Subcontractor Name: Subcontractor Name:

Is This For: Goods? Services? Both?

Taxpayer ID Name: Taxpayer ID Name: Taxpayer ID Name:

First Name: M.I. First Name: M.I. First Name: M.I.

Address: Address: Address:

City: State: Zip Code: Country: City: State: Zip Code: Country:

AS A CONDITION OF OBTAINING, EXTENDING, AMENDING, OR RENEWING A CONTRACT, LEASE, PURCHASE AGREEMENT, OR GRANT AWARD WITH ANY ARKANSAS STATE AGENCY, THE FOLLOWING INFORMATION MUST BE DISCLOSED

FOR INDIVIDUALS *						
Indicate below if: you, your spouse or the brother, sister, parent, or child of you or your spouse is a current or former: member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee:						
Position Held	Mark (x)		Name of Position of Job Held (senator, representative, name of board/ commission, data entry, etc.)	For How Long?		What is the person(s) name and how they relate to you? (i.e. Jane Q. Public, Spouse, John Q. Public, Jr., child, etc.)
	Current	Former		From MM/YY	To MM/YY	
General Assembly						Relation
Constitutional Officer						
State Board or Commission Member						
State Employee						

None of the above applies FOR AN ENTITY (BUSINESS) *

Indicate below if any of the following persons, current or former, hold any position of control or hold any ownership interest of 10% or greater in the entity: member of the General Assembly, Constitutional Officer, State Board or Commission Member, State Employee, or the spouse, brother, sister, parent, or child of a member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee. Position of control means the power to direct the purchasing policies or influence the management of the entity.

Position Held	Mark (x)		Name of Position of Job Held (senator, representative, name of board/ commission, data entry, etc.)	For How Long?		What is the person(s) name and what is his/her % of ownership interest and/or what is his/her position of control?
	Current	Former		From MM/YY	To MM/YY	
General Assembly						
Constitutional Officer						
State Board or Commission Member						
State Employee						

None of the above applies

Contract and Grant Disclosure and Certification Form

Failure to make any disclosure required by Governor’s Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the agency.

As an additional condition of obtaining, extending, amending, or renewing a contract with a state agency I agree as follows:

1. Prior to entering into any agreement with any subcontractor, prior or subsequent to the contract date, I will require the subcontractor to complete a **Contract and Grant Disclosure and Certification Form**. Subcontractor shall mean any person or entity with whom I enter an agreement whereby I assign or otherwise delegate to the person or entity, for consideration, all, or any part, of the performance required of me under the terms of my contract with the state agency.

2. I will include the following language as a part of any agreement with a subcontractor:

Failure to make any disclosure required by Governor’s Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this subcontract. The party who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the contractor.

3. No later than ten (10) days after entering into any agreement with a subcontractor, whether prior or subsequent to the contract date, I will mail a copy of the **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM** completed by the subcontractor and a statement containing the dollar amount of the subcontract to the state agency.

I certify under penalty of perjury, to the best of my knowledge and belief, all of the above information is true and correct and that I agree to the subcontractor disclosure conditions stated herein.

Signature _____	Title _____	Date _____
Vendor Contact Person _____	Title _____	Phone Number _____

Agency Use Only			
Agency Number	Agency Name	Agency Contact Person	Contract or Grant Number
4702501RLF	Office of State Technology	Michael Moran	4702501RLF

* Note: Please list additional disclosures on separate sheet of paper if more space is needed.

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SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 CONTRACT BASIS

- A. Work is based upon conditions at site, Project Manual, contract Drawings for Project No. 26-006, DBA Project # 4702501RLF, all addenda issued and the Contract executed between Owner and contractor.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.3 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Work under other contracts.
 - 3. Sequence of work.
 - 4. Use of premises.
 - 5. Owner's occupancy requirements.
- B. Related Sections include the following:
 - 1. Section 01 50 00, "Temporary Facilities and Controls," for limitations and procedures governing temporary use of Owner's facilities.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work consists of the following:
 - 1. The project will include replacement of the existing 720 kW Uninterruptible Power Sources (UPS's) with a total of 500 kW UPS's. The new UPS's sizing has been adjusted to better match the current data center backup power needs. The project also includes replacement of the existing HVAC systems for the UPS Room and replacement with correctly sized units.

1.5 TYPE OF CONTRACT

- A. Project will be constructed under a lump sum prime contract.

1.6 SEQUENCE OF WORK

- A. Before commencing Work, submit a detailed schedule showing the sequence, commencement and completion dates for all phases of the Work.
- B. Work shall be sequenced according to the Owner. Coordinate any temporary services with Owner prior to starting work. Coordinate access to restricted areas with Owner and Owner's Tenants as necessary to perform the required work.

1.7 USE OF PREMISES

- A. Access to site: The project site is highly secured and work will have to be carefully

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coordinated with the owner.

- B. Work can be done after-hours as permitted with 24-hour notice and approval.

1.8 OWNER'S OCCUPANCY REQUIREMENTS

- A. The Owner will occupy the facility during the project.
- B. Contractor shall coordinate work schedule with Owner's Project Coordinator to ensure minimal disruption of ongoing operations in the building.
- C. Provide minimum two weeks notice for all utility and service shutdowns.

1.9 OWNER

- A. Wherever term "Owner" or "Owners" is used in the Contract Documents it refers to. All papers required to be delivered to Owner shall be delivered to Brian Fortson, #1 Capitol Mall, 3rd Floor, Little Rock AR 72201

1.10 ENGINEER

- A. Wherever term "Engineer" or "Engineers" is used in the Contract Documents it refers to Pettit & Pettit Consulting Engineers, Inc., 201 East Markham St. Suite 400, Little Rock, AR 72201.

1.11 TIME FOR COMPLETION

- A. Project shall be substantially complete 180 days from Notice to Proceed.

1.12 RESPONSIBILITIES OF CONTRACTOR

- A. Except as otherwise specifically stated in the contract, Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, taxes legally collectible because of the Work and all other services and facilities of any nature necessary to execute Work as shown and/or specified under the contract and deliver it complete in every respect within specified time.
- B. If, during the course of construction of this project, the Contractor discovers errors, inconsistencies or omissions in the Contract Documents, the Contractor will report them to the Architect who will issue written instructions to the Contractor. If the Contractor performs Work knowing there is an error, inconsistency or omission in the Contract Documents without giving notice to the Architect or receiving written instruction from the Architect, the Contractor assumes responsibility for the Work and will bear all costs associated with the performance or correction of the Work.
- C. The contractor shall, prior to award of contract, provide their DUNS/CCR number for verification.

1.13 COORDINATION OF WORK

- A. General Contractor to give special attention for coordination of work by various trades to provide uniform and symmetrical layout and spacing of exposed components which affect

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the finished architectural design and appearance. Where spacing and related locations are not specifically shown on the drawings, or where in doubt, Contractor's Superintendent shall consult Architect's Representative prior to installation of that part of the Work. Location of electrical and telephone outlets shall be verified with Architect prior to installation.

1.14 PRECONSTRUCTION CONFERENCE

- A. Either before or soon after actual award of Contract (but in any event prior to start of construction), Contractor or his representative shall attend Preconstruction Conference with representatives of Owner and Architect. Conference will serve to acquaint participants with general plan of contract administration and requirements under which construction operation is to proceed, and will inform Contractor, in detail, of obligations imposed on him and his subcontractors.

1.15 SEQUENCE OF WORK

- A. Renovation: Work shall occur in such a manner that the occupants on the other floors shall have minimal impact due to construction. Dust shields and elevator protections shall be installed as required. Utility outages shall be coordinated 2 weeks in advance and shall occur on off-hours.

1.16 WASTE STREAM MANAGEMENT

- A. The contractor will create or obtain a Waste Management Plan addressing waste generated by a proposed Project prior to the Project generating waste. This waste management plan will describe the contractor's plan to dispose of any sanitary or hazardous waste (e.g., construction and demolition debris, old light bulbs, lead ballasts, piping, roofing material, discarded equipment, debris, and asbestos) generated as a result of the proposed Project. The contractor will maintain this Waste Stream Management Plan during the project and will submit a copy to the owner as part of the closeout documents. The contractor shall ensure that all subcontractors are included in this Waste Stream Management Plan. The contractor shall ensure that the Project is in compliance with all Federal, state, and local regulations for waste disposal.

1.17 DEFINITION

- B. The work "Provide", as used throughout these specifications, means furnish and install.

1.18 REFERENCE STANDARDS

- A. Except as otherwise noted, references throughout Project Manual to Codes, Federal Specifications, ASTM Standards, Association or Industry Specifications and other published standards, are to latest edition or publication of such standards.

1.19 PERMITS

- A. Utilizing the contract documents (Project Manual and Drawings) prepared by the Engineer and his Consultants, along with information provided by the Owner or his Consultants, the Contractor is responsible for securing permits required to successfully complete the project. This responsibility includes payment for the permit and coordination of all submittals.

PART 2 – PRODUCTS (Not Applicable)

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PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 11 00

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SECTION 01 30 00 - ADMINISTRATION REQUIREMENTS

PART 1 – GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work.
- B. Requests for Information (RFIs); on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI.
- C. Schedule and conduct progress meetings at Project site at weekly intervals. Require attendance of each subcontractor or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.

1.2 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
 - 2. Submit four (4) copies of each action submittal. Engineer will return three (3) copies.
 - 3. For submittals related to mechanical, electrical and plumbing, submit four (4) copies. Engineer will return three (3) copies.
 - 4. Architect will return submittals, without review, received from sources other than contractor.
- B. Place a permanent label or title block on each submittal for identification. Provide a space approximately 6 X 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer. Include the following information on the label:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Contractor.
 - 4. Name and address of subcontractor or supplier.
 - 5. Number and title of appropriate Specification Section.
- C. Identify deviations from the Contract Documents on submittals.
- D. Contractor's Construction Schedule Submittal Procedure: Submit construction schedule within five (5) days after receipt of Notice to Proceed.

PART 2 – PRODUCTS

2.1 ACTION SUBMITTALS

- A. Product Data: Mark each copy to show applicable products and options. Include the following:
 - 1. Manufacturer's written recommendations, product specifications, and installation instructions.
 - 2. Wiring diagrams showing factory-installed wiring.
 - 3. Printed performance curves and operational range diagrams.
 - 4. Testing by recognized testing agency.

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5. Compliance with specified standards and requirements.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8½" by 11" but no larger than 30" by 42". Include the following:
 1. Dimensions and identification of products.
 2. Fabrication and installation drawings and roughing-in and setting diagrams.
 3. Wiring diagrams showing field-installed wiring.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

PART 3 – EXECUTION

3.1 SUBMITTAL REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Architect will review each action submittal, make marks to indicate corrections or modifications required will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Submit initial schedule within five (5) days of Notice to Proceed. At weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.
- B. Distribute copies of approved schedule to Owner, Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

END OF SECTION 01 30 00

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SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on:
 - 1. Project including, but not limited to, the following:
 - a. Coordination Drawings.
 - b. Administrative and supervisory personnel.
 - c. Project meetings.
 - d. Requests for Interpretation (RFIs).
- B. Contractor shall participate in coordination requirements.
- C. Related Sections include the following:
 - 1. Section 01 77 00 - Closeout Procedures for coordinating closeout of the Contract.

1.3 DEFINITIONS

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

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Coordination: Contractor shall coordinate construction operations with those of other entities to ensure efficient and orderly installation of each part of the Work. Contractor shall coordinate its operations with operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components.
 - 5. Verify utility requirement and characteristics of 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.

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6. After 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.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

1.5 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
 1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate required installation sequences.
 - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Engineer for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 3. Number of Copies: Submit two opaque copies of each submittal. Engineer will return one copy.
 - a. Submit five copies where Coordination Drawings are required for operation and maintenance manuals. Engineer will retain one copy; remainder will be returned for inclusion in the O&M manuals.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

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

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1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.
- B. Preconstruction Conference: Engineer will schedule a meeting after Notice of Award.
 - 1. Attendees: Authorized representatives of Owner, Engineer, and the Contractor.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Execution of Owner-Contractor Agreement.
 - b. Submission of executed bonds and insurance certificates.
 - c. Distribution of Contract Documents.
 - d. Construction schedule.
 - e. Scheduling/Phasing.
 - f. Critical work sequencing and long-lead items.
 - g. Designation of key personnel and their duties.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for processing Applications for Payment.
 - k. Distribution of the Contract Documents.
 - l. Submittal procedures.
 - m. Preparation of Record Documents.
 - n. Work restrictions.
 - o. Owner's occupancy requirements.
 - p. Responsibility for temporary facilities and controls.
 - q. Parking availability.
 - r. Office, work, and storage areas.
 - s. Progress cleaning.
 - t. Working hours.
 - 3. Minutes: Engineer will record and distribute meeting minutes.
- C. Site Mobilization Conferences: Conduct a site mobilization conference at Project site before Contractor Occupancy.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer and Owner of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Use of the premises by Owner and Contractor.
 - b. Owner's requirements and partial occupancy.
 - c. Temporary Construction facilities and controls provided by Owner.
 - d. Temporary utilities provided by Contractor.
 - e. Application for Payment Procedures.
 - f. Security and Housekeeping procedures.
 - g. Deliveries.

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- h. Submittals.
 - i. Requirements for start-up of equipment.
 - j. Possible conflicts.
 - k. Compatibility problems.
 - l. Time schedules.
 - m. Space and access limitations.
 - n. Testing and inspecting requirements.
 - o. Installation procedures.
 - p. Coordination with other work.
 - q. Protection of adjacent work.
 - r. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings as coordinated and directed by owner. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings, as appropriate to agenda topics for each meeting. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time. 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Review minutes of previous meeting.
 - 2) Status of submittals.
 - 3) Deliveries.
 - 4) Off-site fabrication.
 - 5) Access.
 - 6) Site utilization.
 - 7) Temporary facilities and controls.
 - 8) Work hours.
 - 9) Hazards and risks.
 - 10) Progress cleaning.
 - 11) Quality and work standards.
 - 12) Status of correction of deficient items.
 - 13) Field observations, problems, and decisions.
 - 14) Identification of problems which impede planned progress.

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- 15) RFIs.
- 16) Status of proposal requests.
- 17) Pending changes.
- 18) Status of Change Orders.
- 19) Pending claims and disputes.
- 20) Documentation of information for payment requests.
- 21) Other business relating to Work.
3. Minutes: Contractor to Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Pre-installation Meetings: When required individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
 1. Attendees: Require attendance of parties directly affecting, or affected by, Work of the specific section.
 2. Notify Engineer four days in advance of the meeting date.
 3. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Review present and future needs of each contractor present, including the following:
 - 1) Coordination with related work.
 - 2) Conditions of installation, preparation, and installation procedures.
 - 3) Hazards and risks.
 4. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting including, Engineer, and Owner.

1.8 REQUESTS FOR INTERPRETATION (RFI)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Engineer.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.

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8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: CSI Form 13.2A or other Form approved by Owner.
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Engineer's Action: Engineer will review each RFI, determine action required, and return it. Allow seven working days for Engineer's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Engineer's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Engineer's action may include a request for additional information, in which case Engineer's time for response will start again.
 3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Payment Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within five days of receipt of the RFI response.
- F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within five days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly, Use CSI Log Form 13.2B or other Form approved by Owner. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Engineer.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Engineer's response was received.

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8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal.
9. Request, as appropriate.
10. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SPECIAL PROCEDURES

- A. Materials: As specified in product sections; match existing with new products and salvaged products for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- D. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.
- E. Remove debris and abandoned items from area and from concealed spaces.
- F. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.
- G. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- H. Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring products and finishes to original or specified condition.
- I. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified or renewed condition for each material, with a neat transition to adjacent finishes.
- J. Where new work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- K. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Engineer for review.
- L. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- M. Finish surfaces as specified in individual product sections.

END OF SECTION 01 31 00

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SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 -GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Section 01 31 00 – Project Management and Coordination.
 - 2. Division 26.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Engineer, subject to release of liability consent, for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - 3. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Engineers receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
 - 1. Initial Review: Allow 7 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Re-submittal Review: Allow seven days for review of each re-submittal.

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- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Transmittal form shall be numbered in the following format:
 - a) XXXXXX: six-digit number reflecting the section to which the submittal belongs.
 - b) #: Numerical sequence number for submittals received in that section.
 - c) A: Revise submittals with original number and a sequential alphabetic suffix for how many times the submittal has been resubmitted, with "A" indicating the first submittal.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- E. Deviations: Encircle or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Ensure that sufficient copies of approved submittals, closeout documents, and as-built prints are provided to deliver three (3) complete sets to ABA at the end of the project. Unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
 2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use CSI Form 12.1A or Form approved by Engineer and Owner.
 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.

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- f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
- H. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- I. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "Approved" taken by Engineer and Owner.

PART 2 - PRODUCTS

2.1 PROGRESS SCHEDULE

- A. Within five (5) days after Notice to Proceed, submit to Architect a bar-chart type progress schedule indicating time bar for each trade or operation of work to be performed. Time bar shall demonstrate planned work, properly sequenced and intermeshed, for expeditious completion of Work. Identify phases if required.
- B. Distribute progress schedule including all updates to Architect, Owner, subcontractor, suppliers fabricators, and others with need-to-know schedule compliance requirements. Post copy in field office.

2.2 SCHEDULE OF VALUES

- A. Immediately after execution of the Contract Documents, Contractor shall submit for approval a Schedule of Values totaling the amount of the Contract.

2.3 LIST OF SUBCONTRACTORS

- A. Immediately after execution of the Contract Documents, Contractor shall submit for approval a listing of all subcontractors to be used for the project stating portions of Work to be performed, address and telephone number of firm, and contact at firm familiar with project.
- B. If all subcontractors have not been determined, submit a partial listing with regular updates indicating newly added subcontractors.

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2.4 SUBSTITUTION REQUESTS

- A. Products specified herein establish a quality standard for comparison by manufacturers of similar products. Products of other manufacturers may be substituted for those specified herein on an "Approved Equal" basis. DO NOT propose the substitution of products that do not meet or exceed the quality standards established by the specified product. Products proposed as equivalent MUST be submitted through the General Contractor or review by the Architect after the Contract for Construction is awarded. DO NOT request approval of products prior to the awarding of the contract.
- B. Requests for substitution will be reviewed when extensive revisions to contract documents are not required and changes are in keeping with general intent of Contract Documents; when timely, fully documented and properly submitted; and when one or more of the following conditions is satisfied, all as judged by Architect/Engineer. Otherwise, requests will be returned without action except to record non-compliance with these requirements.
 - 1. Where request is directly related to an "or equal" clause or other language of same effect in Contract Documents.
 - 2. Where required product, material or method cannot be provided within Contract Time, but not as a result of Contractor's failure to pursue the Work promptly or to coordinate various activities properly.
 - 3. Where required product, material or method cannot be provided in a manner which is compatible with other materials of the Work, or cannot be properly coordinated therewith, or cannot be warranted as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial non-compliances which are not possible to otherwise overcome except by making requested substitution, which Contractor thereby certified to overcome such non-compatibility, non-coordination, non-warranty, non-insurability or other non-compliance as claimed.
 - 4. Where required product, material or method cannot receive required approval by a governing authority, and requested substitution can be so approved.
 - 5. Where substantial advantage is offered Owner, in terms of cost, time energy conservation or other valuable considerations, after deducting offsetting responsibilities Owner may be required to bear increased cost of other work by Owner or separate contractors, and similar considerations.
- C. SUBSTITUTIONS REQUESTS MUST BE SUBMITTED WITHIN 45 DAYS AFTER THE DATE OF THE NOTICE TO PROCEED. Substitution requests received after that time will be returned and the Contractor will be required to provide the product specified, except in the following instances:
 - 1. Unavailability of product, material or method, not due to the Contractor's failure to pursue the work promptly or to coordinate various activities properly.
 - 2. Where a specified product or material contains a hazardous material, as defined in 40 CFR 261 and as defined by applicable state and local regulations and of which the Owner and Architect refuse to approve for use, based on Contractor furnished information.
- D. Submit requests for substitutions in wiring using the Substitution Request form found at the end of this Section. This is the only form that will be accepted.
- E. Submit request for substitution request for substitution request, fully identified for product or method being replaced by substitution, including related specification section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Include manufacturer's product data/drawings, description of installation

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methods, material samples where applicable, complete color and finish selection cards or samples, Contractor's detailed statement of effect on construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitutions will result in overall work equal-to-or-better-than work originally indicated.

- F. Failure to provide the requested data and samples within the specified time frame will be grounds for rejection as a comparable product.
- G. Do not incorporate substitutions into Shop Drawings until they have been reviewed by the Architect and written permission has been issued to make the proposed substitution a part of the Contract.
- H. Under no circumstances shall Architect's review of any such substitution relieve Contractor from timely, full and proper performance of Work.
- I. In the event that the substitution of a product by the General Contractor necessitates the redrawing, redesign, modification or other change to the Contract Documents, the General Contractor will bear all associated costs of these changes.

2.5 REQUESTS FOR SUPPLEMENTARY INFORMATION

- A. Make timely requests of Architect for additional information required in planning and production of Work.
- B. File requests in ample time to permit appropriate action by all parties involved and avoid delay in performance of Work.
- C. Owner will not bear costs for delays due to Contractor's failure to request information in a timely manner.

2.6 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit number of copies which Contractor requires, plus three copies which will be retained by the Engineer. Ensure that at least three extra copies submittals are provided for inclusion into the final O & M Manuals.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

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- D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- L. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

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- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement weather conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Engineer.
 - 1. Owner's representative shall be the Project Coordinator.

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Phone: (501) 682-4034
 - 2. Engineer will not review submittals that include MSDSs and will return the entire

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submittal for re-submittal.

PART 3 - EXECUTION

3.1 SUBMITTAL PREPARATION

- A. Permanently mark each submittal to identify project, date, Contractor, subcontractor, submittal name and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking.
- B. Indicate project, date, "To:", "From;", names of subcontractors, suppliers, manufacturers, required references, category and type of submittal, purpose, description, distribution record and signature of transmitter.
- C. Indicate drawing number and specifications section number to which submittal applies.

3.2 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.3 ENGINEER'S ACTION ON SUBMITTALS

- A. Architect will respond to submittals from Contractor by completing the "LETTER OF TRANSMITTAL" form.
- B. Engineer's Submittal Review: Submittal review does not relieve Contractor(s) of compliance with Contract documents or local codes. Review is only for conformance with the design intent of the Project and compliance with information given in the Contract Documents. The contractor is responsible to coordinate and to confirm all dimensions for use at the site. The contractor is responsible for coordination of the work of all trades.
- C. Engineer's Action: Where action and return is required or requested, Engineer will review each submittal and mark per the following, and where possible return within fifteen (15) working days of receipt. When a submittal must be coordinated with submittals of other trades, Contractor is responsible for gathering all information and forwarding to Architect as a single submittal.
- D. Engineer's Response:
 - 1. Final Unrestricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with Contract Documents, when submittal is returned with the following: **Marking: "Approved"**.
 - 2. Final-But-Restricted Release: Work may proceed, provided it complies with notations and corrections on submittal and with Contract Documents, when submittal is returned with the following: **Marking: "Approved as Noted"**.
 - 3. Returned for Resubmission: Do not proceed with work. Revise submittal in accordance with notations there on, and resubmit without delay to obtain a different action marking. Do not allow submittals with the following marking (or

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unmarked submittals where a marking is required) to be used in connection with performance of the Work: **Marking: "Revise and Resubmit"**.

4. Other Action: Where submittal is returned for other reasons, with Engineer explanation included, it will not be marked or marked "Revise and Resubmit".

END OF SECTION 01 33 00

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SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities and support facilities.
- B. Related Sections include the following:
 - 1. Section 01 11 00, "Summary of Work", for limitations on utility interruptions and other work restrictions.
 - 2. Section 01 33 00, "Submittal Procedures", for procedures for submitting copies of implementation and termination schedule and utility reports.

1.3 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - EXECUTION

2.1 INSTALLATION, GENERAL

A. GENERAL SITE REQUIREMENTS

- 1. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways.
- 2. Ensure safe passage of persons around areas of construction. Conduct operations to prevent injury to adjacent buildings, structures, facilities and persons.
- 3. Erect temporary covered passageways as required by authorities having jurisdiction.
- 4. Provide dustproof partitions if required. If not indicated on the drawings, provide dustproof partitions as directed by the Architect to comply with applicable sections of the Life Safety Code.
- 5. Provide temporary enclosures at doors and other openings in walls as necessitated by weather conditions. Construct enclosures with fire retardant treated lumber. Tape joints and caulk to prevent dust and debris from migrating beyond construction areas. Maintain enclosures in good repair and remove when no longer needed.
- 6. Provide interior and exterior shoring, bracing or support as needed to prevent movement, settlement or collapse.

B. JOB OFFICES AND STORAGE

- 1. Contractor and his subcontractors shall maintain office and storage facilities on site as may be necessary. Locate so as to cause no interference with work to be performed on the site by Owner or with Owner's operations. Consult with Architect

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regarding locations. Office shall have as a minimum the following items:

- a. Complete set of Construction Documents including all addenda and supplemental information.
 - b. Telephone and fax machine.
 - c. Layout and meeting space for Engineers or Owners representative to use when visiting the site.
 - d. Complete job file with copies of all correspondence concerning the project.
 - e. Other standard office equipment as is normally required to operate a business.
2. Upon completion of project, or as directed by Architect, Contractor shall remove temporary structures and facilities from the site, same to become his property. Leave the premises in condition required by Contract.

C. TEMPORARY HEATING

1. Provide temporary heating, coverings and enclosures necessary to protect operations and materials against damage by dampness and cold, to dry out work, and facilitate completion of Work.
2. Maintain critical installation temperatures required in separate Sections of the Specifications. Repair or replace at no additional cost to Owner, and materials and work damaged by dampness, insufficient or abnormal heat.

2.2 TEMPORARY UTILITY INSTALLATION

- A. Sanitary Facilities: Toilets: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- B. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.

2.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide non-combustible construction for offices located within construction area.
 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: The project site is located in a high traffic, high profile area of the city. The contractor may park in the adjacent employee parking lot for the Arkansas Public Service Commission located east of the building on the other side of Center Street.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

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1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- F. Existing Elevator Use: Use of Owner's existing freight elevator will be permitted, as long as elevator is cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevator to condition existing before initial use.
 1. Do not load elevators beyond their rated weight capacity.
 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- G. Existing Stair Usage: Use of Owner's existing stairs will be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas so no evidence remains of correction work.

2.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Security Program:
 1. Protect Work in existing premises and Owner's Operation from theft, vandalism, and unauthorized entry.
 2. Initiate program in coordination with Owner's existing security system at project mobilization.
 3. Maintain program throughout construction period until directed otherwise by Engineer.
 4. Cooperate with the Owner's Security Policies.
- B. Entry Control:
 1. Restrict entry of persons and vehicles into the project site and existing facilities.
 2. Allow entrance only to authorized persons and with proper identification.
 3. Maintain log of workers and visitors, make available to the Owner upon request.
 4. Owner will control entrance of persons and vehicles related to Owner's operations.
- C. Personal Identification:
 1. Provide identification badge to each person authorized to enter premises.
 2. Badge to include: Personal photograph, name and assigned number, expiration date, and employer.
 3. Maintain a list of accredited persons; submit copy to Owner on request.
 4. Require return of badges at expiration of their employment on the Work.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and

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lighting.

- F. Dust Control: Provide methods, means, and facilities to minimize dust from construction operations.
- G. Noise Control: Provide methods, means, and facilities to minimize noise from construction operations.
- H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at
 - a. Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

2.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

PART 2 – PRODUCTS – (Not Applicable)

PART 3 – EXECUTION – (Not Applicable)

END OF SECTION 01 50 00

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SECTION 01 56 00 - TEMPORARY BARRIERS AND ENCLOSURES

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section specifies requirements for temporary barriers and enclosures to be constructed during the project to protect the Owner's facilities during the construction process.
- B. Temporary barriers and enclosures required include but are not limited to:
 - 1. Interior/Fixed Barricades.
 - 2. Exterior and Moveable Barricades.
 - 3. Doors.

1.2 RELATED WORK

- A. Section 01 50 00 Temporary Facilities.

PART 2 – PRODUCTS

- 2.1 A. Interior/Fixed Barricades.
 - 1. Interior/fixed barricades shall be constructed of wood or metal studs at 16 inches on center with gypsum board or plywood affixed by means of nails, drywall screws, or other approved fasteners. When possible the barricades should reach and be even along the ceiling. Ideal barricade installation should extend from floor to ceiling; for instances when the barricade is precluded from extending floor to ceiling, the top edges of the barricade should be even throughout the extension of the barricade. Barriers shall include gaskets or seals at top, bottom seams or joints, and at openings to prevent migration of dust from the construction side to the non-construction side of the barrier.
 - 2. When floor to ceiling barricades are not feasible, the Owner shall review and approve polyethylene enclosures from the top of the gypsum wall to the ceiling to mitigate dust exposure to areas outside the work space. The use of polyethylene shall be minimized except as required for dust control. Plastic sheeting/polyethylene is not used in lieu of gypsum board and shall not be used to enclose a work zone, only to mitigate dust in an already acceptably barricaded work area. The top of the wall shall be level horizontally with a metal strip painted to match for an even finish.
 - 3. The Owner may approve the use of polyethylene sheeting at the top of the barricade and continuously at the deck or soffit above the barricade. Polyethylene enclosures shall be white in color, at least 6-mil thick, and fire retardant. Fire rated white tape shall be used to continuously secure the sheeting. Tape in any other color is not permitted. There shall be no wrinkles, holes, tears, patch work pieces, shredded sheets or gathered sections. Polyethylene enclosures shall be supported by framework and be capable of supporting .5 PSF applied over the entire surface of each side, separately.
 - 4. Tape joints in barrier walls on the construction side of barrier only unless non-construction side is specified to be painted. All joints shall be smooth and free from tool marks and ridges.
 - 5. Where shown on the plans or otherwise specified, provide drywall primer to two coats of flat point for a Level 4 finish. Paint color is to match adjacent, existing walls and approved by the Architect. Paint shall extend continuously to the next intersection in the wall for a uniform finish to the existing facility. Where shown or specified barricades shall have 4-inch high vinyl base moldings, wall color to

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match adjacent and existing walls and base molding color to match adjacent and existing moldings.

- B. Exterior and Moveable Barricades.
 - 1. Exterior barricades shall be used for construction along the curbs and adjacent to buildings in public areas. Moveable barricades shall be used when work areas require large open space during work hours for equipment and access such as escalator and elevator replacements.
 - 2. Fire retardant treated plywood fastened to light gauge metal studs or 2 in by 4 inch fire retardant treated timber studs with continuous level framing at top and bottom may be used at curbs and where the Project Architect or Owner's Project Manager deems appropriate.
 - 3. The face of the barricades shall be smooth and free from protrusions with edges and corners eased with no gaps. Nails, screws and other fasteners shall be installed flush with the face of the barricades.
 - 4. If specified, paint on barricades shall match existing walls. Paint must be applied in two coats minimum.
 - 5. Barricades shall be constructed with integral base or other devices to resist an overturning moment created by the force of 50 pounds per lineal foot applied horizontally at the height of 3 feet 6 inches perpendicular to the partition for the full length of the partition. Posts and other ground fastening options should be considered depending on the circumstances of the area and the scale of the barricade. Any implemented fastening shall not present a trip hazard.
- C. Doors.
 - 1. All interior and exterior doors leading into construction areas and build outs must be self-closing, self-locking and open inward towards the construction area.
 - 2. Interior doors shall be pre-hung and of hollow or solid core with three hinges (1 ½ pair) with levered lock set. Doors shall be painted and framed to prevent warping, and shall be mounted flush to the barricade walls. Interior door shall be provided with a vision panel to allow observation into the work zone. Vision panel shall be constructed of tempered clear glass or shatter resistant plexiglass.
 - 3. Exterior doors shall be pre-hung hollow or solid core doors or 4-foot wide plywood doors, optional to Contractor. Hardware should match existing hardware.
 - 4. All interior and exterior doors must remain closed at all times. When doors are open for delivery of materials, the entrance must be staffed to prevent public entry into the construction area. If doors are to be secured during or after workhours, the contractor shall furnish locking hardware and shall provide 2 copies of keys to the building operator. One copy of keys shall be placed in the Fire Department Knox-Box and shall be labeled as "CONSTRUCTION AREA ACCESS" with floor number and suite number corresponding to the door location.
 - 5. Maintenance, cleaning, painting, patching or replacement of interior and exterior doors, door frames and hardware is required on a regular basis during the duration of the construction project.
 - 6. The interior and exterior access doors into the construction area shall be signed as "CONSTRUCTION AREA – NO UNAUTHORIZED ENTRY". No unapproved signage shall be affixed to the public side of the door. If the Contractor determines that additional types of signage are necessary (e.g., "hard hat area," "laser in use," "wet paint" etc.), the Architect should be notified. Signs shall be engraved or factory-printed laminated plastic or metal signs. Paper or laminated signs of any other type shall not be used unless approved by the Architect in writing. Submit a sample of each proposed sign type to the Architect for approval during the shop drawing submittal process.

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PART 3 – EXECUTION

3.1 ENCLOSURES ENCOMPASSING OPERABLE DEVICES

- A. The contractor must coordinate enclosures that encompass Automated External Defibrillators (AED), Fire Pull Boxes, Cameras, Fire Sprinklers, Pay Phones, and Exit Doors with the Architect and Owner's Project Manager at least two weeks in advance of barricade placement.
- B. Contractor shall provide protective dust covers as recommended by the manufacture for smoke detectors located within the work zone. Covers shall be in place at all times when dust generating operations are in progress. Contractor shall remove dust covers at the end of each work period so as to restore normal operation during non-work periods.
- C. Contractor shall close HVAC dampers and seal off grilles and registers as required to prevent spread of dust for the work zone to remainder of the building during each work period. Remove covers and open dampers to restore normal HVAC operations at the end of each work period unless otherwise required or noted.
- D. Where HVAC equipment must remain in operation during the construction phase, the Contractor shall provide temporary filters as required to prevent excessive buildup of dirt or dust in the HVAC system. Contractor shall construct housing for temporary filters as required to allow HVAC devices to function as originally intended. Contractor shall be responsible for maintaining filters during the construction phase and for removing temporary filters and housings at completion of project. Contractor shall repair holes and remove adhesive residue from existing surfaces where temporary filters have been used.

3.2 PROTECTION OF FLOOR COVERINGS

- A. Existing floor and carpet areas beneath panels and within barrier and enclosures areas shall be protected with Masonite-type board, heavy cardboard, carpet or other suitable material to protect existing floor coverings. Tape or seal all joints and seams continuous. Contractor shall also provide appropriate protection along all haul routes and worker access routes inside the building. Protection along haul routes may be temporary for the duration of moving materials into and out of the construction zone. Stains, tears, snags, or other damage to existing floor coverings shall be repaired or replace by the Contractor at no additional cost to the Owner. Repairs shall be subject to the approval of the Architect and Owner's Project Manager.
- B. Contractor shall provide walk-off mats at each entrance to the work space. Mats shall be of the type that traps or removes dust and dirt from boots and shoes so as to minimize the tracking of dirt onto adjacent unprotected flooring. Contractor shall maintain or replace mats throughout the construction phase.

3.3 PROTECTION OF WALLS, CEILING, AND FURNISHINGS

- A. Protect walls, ceiling, furniture, and fixtures within the work zone from dust, dirt, overspray, or other construction related hazards during construction activities. Provide heavy gauge paper, card board, polyethylene sheeting (3-mil thickness minimum), or other approved covering secured with low adhesive tape. Tape joints and seams as required to protect existing finishes.
- B. When working inside occupied spaces remove protective cover at the end of each work period and reinstall at beginning of next work period to all occupants to conduct normal business operations. Vacuum-clean dust and dirt that may have gotten through the barrier at the end of each work period.

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3.4 MINIMIZED EFFECT ON BUILDING OPERATIONS

- A. The Contractor shall construct barricades with the least possible obstruction and inconvenience to the Owner, its occupants and the public.

3.5 MAINTENANCE OF BARRICADES

- A. A straight, clean and uniform appearance of all barricades shall be maintained at all times. Scuffed, dirty, punctured or discolored barricades shall be cleaned, painted or replaced as required. Each barrier shall be inspected daily with repairs made immediately. It is the Contractor's responsibility to maintain the aesthetic integrity of the barricades throughout the life of the project.

3.6 TEMPORARY POWER FOR RELOCATED DEVICES

- A. Provide electrical power outlets for any advertising, safety and/or exit signs to be relocated from their existing locations in or on walls that would be covered by the temporary barricade.

3.7 MAINTENANCE OF BUILDING SIGNAGE AND LIGHTING

- A. Existing signage and lighting systems in operation as the work proceeds shall be maintained unless otherwise approved by the Owner's Project Manager.

3.8 BARRICADES ADJOINING EXISTING WALLS

- A. Barricades shall neatly adjoin existing walls. Existing finishes shall be protected prior to installation of partitions. Gaps between existing walls and enclosures shall be 1 ½ inches maximum unless seals are required to prevent dust from escaping from the construction zone. Provide braces as necessary to support enclosures, flush with surface of panels.

END OF SECTION 01 56 00

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SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Section 01 30 00 – Administration Requirements.
 - 2. Section 01 77 00 – Closeout Procedures.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.
 - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 11. Advise Owner of changeover in heat and other utilities.
 - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 13. Complete final cleaning requirements, including touchup painting.
 - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after

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inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

- C. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
- D. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
 - 2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

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- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
- B. To the maximum extent possible, use cleaning materials and procedures that are considered environmentally friendly (green). Avoid the use of cleaning solvents that contain volatile organic compounds (VOC).

PART 3 – EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid

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- disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration. 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Replace parts subject to unusual operating conditions.
 - m. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00

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SECTION 23 05 00 - COMMON WORK RESULTS FOR HEATING, VENTILATING AND AIR CONDITIONING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Basic Requirements for complete heating, ventilating, and air conditioning system.

1.2 RELATED SECTIONS

- A. Division 23 – All Sections.
- B. Division 26 – All Sections.

1.3 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.

1.4 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 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 at completion of project. These will be labeled "Contractor Revised Drawings".

1.5 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.

1.6 CODE REQUIREMENTS, FEES & PERMITS

- A. Perform work in accordance with applicable provisions of state and local Plumbing Code,

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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.

1.7 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.

1.8 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 by reason of unforeseen conditions. Any existing electric 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.

1.9 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 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 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 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 23.
- D. Be responsible for required digging, cutting and patching incident to work of this Division and

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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, 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.

1.10 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.

1.11 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 specification.
- B. Use domestic made pipe, pipe fittings and motors on 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 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.

1.12 REVIEW OF MATERIALS AND EQUIPMENT

- A. Furnish complete catalog data for manufactured items of equipment to be used in Work to

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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 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 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.

1.13 OPERATIONS AND MAINTENANCE MANUAL FOR MECHANICAL SYSTEMS

- A. Provide Operations & Maintenance Manuals for Mechanical Systems including:
 - 1. Provide a master index at beginning of Manual showing items included. Include name and phone number of 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, FireStats, pressure gages, automatic valves and refrigeration accessories. Mark correct operating settings for each control instrument on these diagrams.
 - 4. Provide diagram for electrical control system showing wiring of related electrical control items such as FireStats, 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 project. Instructions shall include name of 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 name of

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- 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 3-day operating test data.
- D. Provide a complete set of approved shop drawing submittals as an Appendix item.

1.14 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 – Sixteen (16) hours.
 - 2. Temperature Controls – Sixteen (16) 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.

1.15 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 23 05 00

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SECTION 23 05 01 - MECHANICAL DEMOLITION

PART 1 - GENERAL

1.1 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.

1.2 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.

1.3 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

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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

3.1 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.

3.2 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 23 05 01

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SECTION 23 05 29 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 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.

1.2 RELATED SECTIONS

- A. Section 23 07 19 – HVAC Piping Insulation.
- B. Section 23 23 00 – Refrigerant and Condensate Piping.
- C. Division 23 – All Sections.

1.3 REFERENCES

- A. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

1.4 SUBMITTALS

- A. Submit under provisions of Section 23 05 00 and Section 01 33 00.
- B. Manufacturer's Installation Instructions: Indicate special procedures and assembly of components.

PART 2 - PRODUCTS

2.1 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.

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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.

2.2 ACCESSORIES

- A. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

2.3 FLASHING

- A. Metal Flashing: 28 gage 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.

2.4 SLEEVES

- A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage galvanized steel.
- B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe.
- C. Sleeves for Ductwork and Pipes Through 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

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.2 PIPE HANGERS AND SUPPORTS

- A. Support horizontal piping as scheduled.
- B. Install hangers to provide minimum 1/2-inch space between 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 at every floor. Support vertical cast iron pipe at each floor at hub.
- G. Where several pipes can be installed in parallel and at same elevation, provide multiple or

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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. Refer to Section 09 90 00. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

3.3 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 30 00. Coordinate exact size requirement 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.

3.4 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 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 counterflash, 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. Seal floor drains watertight to adjacent materials.
- E. Adjust storm collars tight to pipe with bolts; calk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

3.5 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 finished floor level. Caulk sleeves.
- D. Where piping or ductwork penetrates fire or smoke rated 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 requirements of ASTM E119.

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- E. Install chrome plated steel escutcheons at finished surfaces.

3.6 SCHEDULES

HANGER ROD

PIPE SIZE Inches	MAX. HANGER SPACING Feet	DIAMETER 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 23 05 29

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SECTION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 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. Type of identification devices specified in this section include the following:
 - a. Plastic Pipe Markers.
 - b. Valve Tags.
 - c. Valve Schedule Frames.
 - d. Engraved Plastic-Laminate Signs.
 - e. 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.

1.2 RELATED SECTIONS

- A. Division 23 - All Sections.

1.3 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.
- B. ANSI Standards: Comply with ANSI A13.1 for lettering size, colors, and viewing angles of identification devices.

1.4 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.

PART 2 - PRODUCTS

2.1 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. 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.

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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.
- C. 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.

2.2 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 mechanical 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

3.1 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. Ductwork Identification:
1. General: Identify air supply, return, exhaust, intake and relief ductwork with plastic signs and arrows, showing ductwork service and direction of flow, in black or white (whichever provides most contrast with ductwork color).
 2. Location: In each space where ductwork is exposed, or concealed only by removable ceiling system, locate signs near points where ductwork originates or continues into concealed enclosures (shaft, underground or similar concealment), and at 50' spacing along exposed areas.
 3. Access Doors: Provide plastic-laminate type signs on each access door in ductwork and housings, indicating purpose of access (to what equipment) and other maintenance and operating instructions, and appropriate safety and procedural information.
 4. Concealed Doors: Where access doors are concealed above acoustical ceilings or similar concealment, plasticized tags may be installed for identification in lieu of specified signs, at Installer's option.
- C. Mechanical 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

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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.
- D. Refer to Division-23 sections for identification requirements at central-station mechanical control center; not work of this section.
- E. Refer to Division-26 sections for identification requirements of electrical work; not work of this section.
- F. Lettering Size: Minimum 3/8-inch-high lettering for name of unity 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.
- G. Text of Signs: In addition to name of identified unit, provide lettering to distinguish between multiple units, and warn of hazards and improper operations.
- H. 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 23 05 53

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SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING FOR HEATING, VENTILATING AND AIR CONDITIONING

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Basic Requirements for Testing, Balancing and Adjusting Heating, Ventilating, and Air Conditioning Systems.

1.2 RELATED SECTIONS

- A. Section 23 05 00 – Common Work Results for HVAC.
- B. Section 23 09 23 – Controls for HVAC.

1.3 REFERENCES

- A. AABC - National Standards for Field Measurement and Instrumentation, Total System Balance.
- B. ASHRAE – (latest accepted edition) Systems Handbook: Chapter 37, Testing, Adjusting and Balancing.
- C. NEBB - Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.

1.4 SUBMITTALS

- A. Submit name of adjusting and balancing agency for approval within 30 days after award of Contract.
- B. Submit test reports as a submittal under provision Section 23 05 00.
- C. Prior to commencing work, submit draft reports indicating adjusting, balancing, and equipment data required.
- D. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.
- E. Provide reports in hard back, letter size manuals, complete with index page and indexing tabs, with cover identification at front and side.
- F. Include detailed procedures, agenda, sample report forms prior to commencing system balance.

1.5 QUALITY ASSURANCE

- A. Mechanical contractor may at his option perform hydrostatic pressure test and hydronic balancing of the HVAC piping systems.
- B. Air Balance Subcontractor shall be a qualified representative of the Air Distribution Manufacturer whose devices are used on the project, or a qualified Independent Balancing Contractor. Air Balance Subcontractor may not be the Mechanical Contractor or the Sheet

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Metal Contractor on the project.

- C. In order to be considered to be qualified, Independent Air Balance Contractor shall submit evidence of qualifications as follows:
 - 1. NEBB Certification of Air Balance Technicians(s) to be used on the project.
 - 2. Evidence of certification of calibration or equipment.

1.6 SEQUENCING AND SCHEDULING

- A. Sequence work under the provisions of Division 01.
- B. Sequence work to commence after completion of systems and schedule completion of work before Substantial Completion of Project.
- C. Schedule and provide assistance in final adjustment and test of life safety, smoke evacuation and/or smoke control system with Fire Authority.

PART 2 PRODUCTS

2.1 EQUIPMENT

- A. All measurements during air balance operations shall be made by means of the "Velometer" or "Anemometer" method. Instruments used for check of air quantities shall have recent certification of calibration.
- B. The Air Balance Subcontractor shall furnish balance forms for all air systems. Forms shall list air distribution devices by location, system, size, pattern, CFM flow factor and required velocity.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Before commencing work, verify that systems are complete and operable. Ensure the following:
 - 1. Equipment is operable and in a safe and normal condition.
 - 2. Temperature control systems are installed complete and operable.
 - 3. Proper thermal overload protection is in place for electrical equipment.
 - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 - 5. Duct systems are clean of debris.
 - 6. Correct fan rotation.
 - 7. Fire and volume dampers are in place and open.
 - 8. Coil fins have been cleaned and combed.
 - 9. Access doors are closed and duct end caps are in place.
 - 10. Air outlets are installed and connected.
 - 11. Duct system leakage has been minimized.
 - 12. Hydronic systems have been flushed, filled, and vented.
 - 13. Correct pump rotation.
 - 14. Proper strainer baskets are clean and in place.
 - 15. Service and balance valves are open.
- B. Report any defects or deficiencies noted during performance of services to Architect/Engineer.

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- C. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance.
- D. If, for design reasons, system cannot be properly balanced, report as soon as observed.

3.2 PREPARATION

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect/Engineer to facilitate spot checks during testing.
- B. Provide additional balancing devices as required.

3.3 INSTALLATION TOLERANCES

- A. Adjust air handling systems to plus or minus 5 percent for supply systems and plus or minus 10 percent for return and exhaust systems from figures indicated.
- B. Adjust hydronic systems to plus or minus 10 percent of design conditions indicated.

3.4 ADJUSTING

- A. Recorded data shall represent actually measured, or observed condition.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.
- E. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

3.5 AIR BALANCE PROCEDURE

- A. All air quantities shall, after completion of the job, be adjusted to provide air quantities shown on plans. After complete adjustment, additional re-adjustment shall be performed if necessary to satisfy desired temperature.
- B. The balance procedure shall include the checking of each supply, return and exhaust fan. As a minimum, CFM, RPM and ampere readings shall be taken. Pulley adjustments, etc., shall be performed to obtain the required CFM readings.
- C. Air Balance Subcontractor shall also furnish all balancing instruments required. Air Balance Subcontractor shall provide one experienced technician to team with Contractor's technician to balance system. The Air Balance Subcontractor's Technician and the Contractor's Technician shall perform as a team during the entire field balancing operation.
- D. After all adjustments and corrections have been performed to balance system as designed and required, the Air Balance Subcontractor shall prepare and submit three (3) copies of completed balance form to Architect/Engineer for approval.

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- E. At the time of balancing, the Air Balance Contractor's Technician shall verify that each device is the size and pattern submitted and includes accessories such as volume controls and deflectrols where specified.
- F. Where project includes controlled Air Terminal Units, the Terminal Unit Manufacturer's Supplier shall be responsible for testing the automatic control devices on the Terminal.

END OF SECTION 23 05 93

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SECTION 23 07 19 - HVAC PIPING INSULATION

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Basic Requirements for Piping Insulation for Heating, Ventilating, and Air Conditioning systems.

1.2 RELATED SECTIONS

- A. Section 23 23 00 – Refrigerant and Condensate Piping.

1.3 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.

1.4 SUBMITTALS

- A. Submit under provisions of Division 01 and Section 23 05 00.
- 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.

1.5 QUALITY ASSURANCE

- A. Materials: Flame spread/smoke developed rating of 25/100 or less in accordance with ASTM E84, NFPA 255, and UL 723.

1.6 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section.

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1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 23 05 00.
- 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.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

PART 2 - PRODUCTS

2.1 GLASS FIBER

- A. Insulation: ASTM C547; rigid molded, noncombustible.
 - 1. "K" value: ASTM C335, 0.24 at 75 degrees F.
 - 2. Minimum Service Temperature: -20 degrees F.
 - 3. Maximum Service Temperature: 850 degrees 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.

2.2 CELLULAR GLASS

- A. Insulation: ASTM C552.
 - 1. Thermal Conductivity: 0.29 Btu-in/hr.ft² at 75 degrees F.
 - 2. Maximum Water Vapor Transmission: 0.1 perm.
 - 3. Density: 7.5 lb/ft³.
 - 4. Cover: Pittwrap®

2.3 CELLULAR FOAM

- A. Insulation: SASTM C534; flexible, cellular elastomeric, tubing.
 - 1. "K" Value: ASTM C177 C518; 0.27 at 75 degrees F.
 - 2. Minimum Service Temperature: -40 degrees F.
 - 3. Maximum Service Temperature: 220 degrees F.
 - 4. Maximum Moisture Absorption: ASTM D1056; 1.0 percent pipe by volume, 0 percent sheet by volume.
 - 5. Moisture Vapor Transmission: ASTM E96, 0.20 perm inches.
 - 6. Maximum Flame Spread: ASTM E84; 25.
 - 7. Maximum Smoke Developed: ASTM E84; 25

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8. Connection: Waterproof vapor barrier adhesive.

2.4 APPROVED MANUFACTURERS

- A. Glass Fiber:
 1. Owens/Corning Fiberglass.
 2. Architect Approved - Other acceptable manufacturers offering equivalent products.
- B. Cellular Glass:
 1. Owens/Corning Foamglas.
 2. Architect Approved - Other acceptable manufacturers offering equivalent products.
- C. Vapor Barrier Jacket Lap Adhesive - Compatible with insulation:
 1. Foster 25.
 2. Architect Approved.
- D. Cellular Foam:
 1. Armstrong Armaflex - FR.
 2. K-Flex USA.
 3. Architect Approved.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.2 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.
 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 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.

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- 6. For hot piping conveying fluids over 140 degrees F, insulate flanges and unions at equipment.
 - E. Inserts and Shields:
 - 1. Application: Piping 1-1/2 inches diameter or larger.
 - 2. Insert Location: Between support shield and piping and under the finish jacket.
 - 3. 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.
- 3.3 TOLERANCE
- A. Substituted insulation materials shall provide thermal resistance within 10 percent at normal conditions, as materials indicated.
- 3.4 CELLULAR FOAM
- A. Refrigerant liquid and suction lines shall be insulated with $\frac{3}{4}$ inch thickness Armstrong FR/ Armaflex, or approved equal, and shall be installed to manufacturer's recommendations. Joint butt joints with 520 adhesive. The insulation shall not be slit for installation. Insulate refrigerant liquid lines for heat pump units, as directed by manufacturer.
 - B. All liquid and suction lines exposed to weather shall have two (2) coats of Armaflex "WB" paint applied directly to the Armaflex insulation surface.

END OF SECTION 23 07 19

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SECTION 23 09 23 - CONTROLS FOR HVAC

PART 1 - GENERAL

1.1 SCOPE

- A. Low voltage electric controls system.
- B. Includes:
 - 1. This section includes but is not necessarily limited to the automatic control of heating, ventilating and air conditioning equipment as follows:
 - a. Ductless split system.
 - 2. Conduit shall be furnished by the Electrical Contractor.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Common Work Results for Heating Ventilating and Air Conditioning - Section 23 05 00.
- B. Electrical Requirements - Division 26.

1.3 COORDINATION

- A. All power and motor and line voltage interlock wiring shall be done by the electrical contractor unless otherwise noted for specific items.
- B. The Mechanical contractor shall furnish and install all conduit and back boxes for controls and interlock wiring.
- C. Low voltage control and interlock wiring shall be done by the Mechanical contractor. Motors shall be as shown on the drawings.
- D. The mechanical contractor shall furnish and install any low voltage relays, thermostats and similar items required for the proper operation of the mechanical equipment.
- E. The mechanical contractor shall coordinate exact requirements with the Electrical Contractor.

1.4 SUBMITTALS

- A. The contractor shall submit complete temperature control diagrams with written "sequence of operation" and factory printed specification data sheets, covering each control device proposed to be used for review prior to installation of any equipment or part of the system. Diagrams shall contain a Bill of Materials list for each device used.
- B. Submittals shall show complete piping diagrams (part designations) and terminal-to-terminal wiring diagrams of all control and interlock wiring furnished under this specification.
- C. Submittal shall include a schematic one-line riser diagram noting conduit sizes and number of conductors contained therein for approval.

1.5 QUALITY ASSURANCE

- A. Wiring:
 - 1. The wiring and conduit system for the control and operation of the mechanical system items shall comprise a unitary separate wiring system. The installation of this

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wiring system shall be governed by Division 26 - ELECTRICAL.

2. Control system wiring shall not be run in conduit installed for power wiring by Division 26 - ELECTRICAL, without direct approval of the Architect.

- B. Control system shall consist of all thermostats, temperature sensors, controllers, automatic valves, damper operators, control panels, controls and interlock wiring to fill the intent of the specifications and provide for a complete and operable system.

1.6 INSTRUCTION TO OWNER'S REPRESENTATIVES

- A. Upon completion of the work, the contractor shall instruct operating personnel in use and programming of each control system. Owner shall be furnished two (2) copies of reference control system brochure covering equipment control diagrams and sequence of operation, in addition to framed schematics, located where directed by the Architect, of the control system and sequence of operation.

PART 2 - PRODUCTS

2.1 THERMOSTATS

- A. Thermostats shall be programmable low voltage.
- B. Thermostats shall be single stage or two stage heating and cooling, as shown on the plans.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Contractor shall be responsible for the control and interlock wiring associated with the air conditioning system. Coordinate location, power requirements, conduit runs, etc. with the Electrical Contractor.
- B. Furnish and install all low voltage wiring between thermostats and controlled equipment. Number of wires and wire gauge shall be as recommended by the equipment manufacturer for this specific application.
- C. Minimum size for line voltage wiring (over 24-volts) shall be No. 14 TW or RH. Minimum size on 24-volt and under wiring shall be No. 16 TW or RH. All wiring shall be in accordance with the National Electrical Code for current carrying capacity.
- D. Interlock controls shall be made through auxiliary contacts with pairs of conductors. Cross-phasing or single wire interlocking will not be acceptable.
- E. Provide all necessary boxes, fittings and accessories as required.
- F. Do not run conduit concealed under insulation or inside ducts. Mount control devices and conduit located on ducts or apparatus with external insulation on stand-off support to avoid interference with insulation.
- G. Run wire connecting devices on or in control cabinet parallel with the sides of the cabinet neatly racked to permit tracing. Rack connections bridging a cabinet door along the hinge side and protect from damage. Provide grommets, sleeves or vinyl tape to protect wires from sharp edges of panels, conduit and other items.

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H. Install low-voltage control wiring to condensing units in conduit when run outside the building

3.2 SEQUENCE OF OPERATION

A. See Sequence of Operations on drawings.

END OF SECTION 23 09 23

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SECTION 23 23 00 – REFRIGERANT AND CONDENSATE PIPING

PART 1 GENERAL

- 1.01 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- 1.02 SCOPE
 - A. Interconnecting piping between evaporator coil and condensing unit on split system packaged units.
 - B. Equipment condensate drains.
- 1.03 RELATED WORK SPECIFIED ELSEWHERE
 - A. Section 23 05 00 – Common Work Results for Heating, Ventilating, and Air Conditioning System.
 - C. Section 23 07 19 – HVAC Piping Insulation.

PART 2 PRODUCTS

- 2.01 PIPING
 - A. Type "L", hard drawn copper (degreased) – refrigerant piping.
 - B. Type "M", hard drawn copper – condensate drains.
- 2.02 FITTINGS
 - A. Wrought copper. Long turn ells only.
- 2.03 SOLDER
 - A. Brazing alloy with 1000 degrees F melting point and suitable flux.
- 2.04 VALVES
 - A. Packless bellows or diaphragm type for use with Freon type refrigerant.
- 2.05 EQUIPMENT DRAINS AND OVERFLOWS
 - A. Copper tubing: ASTM B88, Type M, hard drawn.
 - 1. Fittings: ANSI/ASME B16.23 cast brass, or ANSI/ASME B16.92 solder wrought copper.
 - 2. Joint: ASTM B32 solder, Grade 95TA.
- 2.06 APPROVED MANUFACTURERS
 - A. Valves:
 - 1. Mueller Brass Company.
 - 2. Architect approved equal.

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- B. Solder:
 - 1. Phoson Fifteen.
 - 2. Architect approved equal.

PART 3 EXECUTION

- 3.01 Install refrigerant accessories as shown on the drawings and as may be recommended by the unit manufacturer.
- 3.02 Provide double suction risers and pitch lines as required to ensure positive oil return to compressor.
- 3.03 Testing shall be done during progress of work or at completion to ensure tight system. Change the system with dry nitrogen and soap test hot gas lines at 300 psi and liquid and suction lines at 245 psi. Allow system to stand for 24 hours under pressure and if change in pressure, system may be considered tight.
- 3.04 Before charging, evacuate the system to 0.15 inches of mercury absolute pressure. All pumps to operate at least four (4) hours at this reading.
- 3.05 REFRIGERANT CONTAINMENT
 - A. Contractor shall take all necessary precautions to prevent the accidental or intentional release of refrigerant to the atmosphere.
 - B. When a sealed system must be broken, provide all necessary equipment and containers as required to pump down the entire system volume, or that volume not contained in isolated receivers on the equipment.
 - C. Contractor shall clean and re-use refrigerant to the greatest extent possible. Un-used refrigerant shall be properly disposed of or recycled at the Contractor's expense.
- 3.06 Provide proper charge of refrigerant and oil for proper operation in accordance with manufacturer's requirements.

END OF SECTION

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SECTION 23 81 26 - SINGLE-ZONE, HEAT PUMP HVAC SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes complete single-zone, heat pump HVAC system(s) which may include, but not limited to, the following components:
 - 1. Outdoor, air-source heat pump units.
 - 2. Indoor, exposed, wall-mounted units.
 - 3. Indoor, exposed, floor-mounted units.
 - 4. Indoor, recessed, ceiling-mounted units with 24x24" grilles.
 - 5. Indoor, recessed, ceiling-mounted units with 33x33" grilles.
 - 6. Indoor, recessed, one-way ceiling-mounted units.
 - 7. Indoor, suspended, ceiling-mounted units.
 - 8. Indoor, concealed, ceiling-mounted units for ducting.
 - 9. Indoor, concealed, multi-position units for ducting.
 - 10. Indoor, multi-position cased coil for ducting with gas furnace.
 - 11. HVAC system controllers.
 - 12. HVAC system refrigerant piping.

1.02 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Nationally recognized manufacturer of HVAC systems and products having shipped HVAC systems with similar requirements to U.S. market for a continuous period of five years within time of bid.
 - 2. Having complete published online catalog literature, installation, and operation and maintenance manuals for all products intended for use. Resources must be publicly available without login or sign-in as registered account.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by HVAC system manufacturer.
 - 1. Each employee shall be certified to have successfully completed training for proper installation of systems, including, but not limited to, equipment, piping, controls, and accessories indicated and furnished for installation.
- C. ISO Compliance: System equipment and components furnished by HVAC system manufacturer shall be manufactured in an ISO 9001 and ISO 14001 facility.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in a clean and dry place. Protect products from weather, dirt, dust, water, construction debris, and physical damage.
 - 1. Retain factory-applied coverings on equipment to protect finishes during construction and remove just prior to operating unit.
- B. Cover unit openings before installation to prevent dirt and dust from entering inside of units. If required to remove coverings during unit installation, reapply coverings over openings after unit installation and remove just prior to operating unit.
- C. Comply with manufacturer's written rigging and installation instructions for unloading and moving to final installed location.

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1.04 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace equipment and components that fail(s) in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
 - 2. Warranty Period:
 - a. For Compressor, 5 years from date of Substantial Completion.
 - b. For Parts, 1 year from date of Substantial Completion.
- B. Installer's Labor Warranty: Installer agrees to repair or replace equipment and components that fail(s) in materials or workmanship within specified warranty period.
 - 1. Warranty Period: One year from date of substantial completion.

PART 2 PRODUCTS

2.01 SINGLE-ZONE, HEAT PUMP HVAC SYSTEMS

- A. Manufacturers:
 - 1. Rheem.
 - 2. Trane.
 - 3. Approved Equal meeting "Buy America" requirements.

2.02 SYSTEM DESCRIPTION

- A. Single-zone HVAC system(s) with variable capacity in response to varying cooling and heating loads. System shall consist of outdoor unit, indoor unit, piping, controls, and electrical power to make complete operating system(s) complying with requirements indicated.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. AHRI Compliance: System and equipment performance certified according to AHRI 210/240-2024.
- D. UL Compliance: Comply with UL 60335-2-40.

2.03 OUTDOOR, AIR-SOURCE HEAT PUMP UNITS

- A. Description: Factory-assembled and tested complete unit module designed for use in systems with all cooling demands.
- B. Cabinet:
 - 1. Galvanized steel and coated with a corrosion-resistant finish.
 - a. Coating with documented salt spray test performance of 2000 hours according to ASTM B117 surface scratch test (SST) procedure.
 - 2. Internal Access: Removable panels or hinged doors of adequate size for field access to internal components for inspection, cleaning, service, and replacement.

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- C. Compressor and Motor Assembly:
 - 1. Positive-displacement, direct-drive and hermetically sealed rotary or scroll compressor with inverter drive. Non-inverter compressors—where LRA applies—are not allowed.
 - 2. Protection: Integral protection against the following:
 - a. Calculated high and low refrigerant pressure.
 - b. High refrigerant and oil temperature.
 - c. Thermal and overload.
 - d. Voltage fluctuations.
 - e. Short cycling.
 - 3. Vibration Control: Integral isolation to dampen vibration transmission.
 - 4. Crankcase heater.
 - 5. Fusible plug.
- D. Heat-Exchanger Assembly: Documented salt spray test performance of 2000 hours according to ASTM B117 surface test (SST) procedure.
 - 1. Plate Fin Coils:
 - a. Casing: Aluminum, galvanized, or stainless steel.
 - b. Fins: Aluminum or copper, mechanically bonded to tubes, with arrangement required by performance.
 - c. Tubes: Copper, of diameter and thickness required by performance.
- E. Heat-Exchanger Fan and Motor Assembly:
 - 1. Fan(s): Propeller type.
 - a. Horizontal discharge.
 - b. Direct-drive arrangement.
 - c. Fabricated from non-ferrous components.
 - d. Statically and dynamically balanced.
 - 2. Fan Guards: Removable safety guards complying with OSHA regulations. If using metal materials, coat with corrosion-resistant coating to match performance indicated for heat exchanger.
 - 3. Motor(s): Brushless DC or electronically commutated with permanently lubricated bearings and rated for outdoor duty.
 - 4. Motor Protection: Integral protection against thermal, overload, and voltage fluctuations.
- F. DX Capacity Control: Electronic modulating type expansion valve with linear or proportional characteristics.
- G. Standard Operating Range:
 - 1. COOL Mode: 14°F to 115°F DB.
 - a. Residential-duty unit cooling capacity begins to degrade below 67°F and will be less than 50% at minimum range.
 - 2. HEAT Mode:
 - a. Standard heat pump as indicated on Drawings:
 - 1) -4°F to 59°F WB
 - b. Hyper Heating or Cold Climate heat pump as indicated on Drawings:
 - 1) -13°F to 59°F WB
- H. Field-Installed Unit Accessories:
 - 1. Heat Exchanger Hail Guards.
 - 2. Central Drain Pan with Socket.
 - 3. Gas Line Muffler to reduce refrigerant pulsation during HEAT operation.
- I. Unit Controls:
 - 1. Factory-Installed Sensors:

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- a. Refrigerant discharge temperature.
 - b. Outdoor air temperature.
 - c. Defrost temperature.
 - d. Outdoor coil temperature. Features and Functions: Self-diagnostics, 3-minute time delay, auto-restart.
- J. Refrigerant:
 - 1. R-454b
 - 2. Pre-charged refrigerant supplied within unit for up to 25 feet line length.
- K. Refrigerant Piping Allowances: System shall operate up to maximum limits without need for line size changes, traps or additional oil.
 - 1. Standard heat pump as indicated on Drawings:
 - a. Outdoor unit sizes 15 and smaller: Up to 65 feet total length, up to 40 feet height difference, up to 10 long-radius elbows.
 - b. Outdoor unit size 18: Up to 100 feet total length, up to 50 feet height difference, up to 10 long-radius elbows.
 - c. Outdoor unit sizes 24 and larger: Up to 100 feet total length, up to 100 feet height difference, up to 10 long-radius elbows
 - 2. Hyper Heating or Cold Climate heat pump as indicated on Drawings:
 - a. Outdoor unit sizes 18 and smaller: Up to 100 feet total length, up to 50 feet height difference, up to 10 long-radius elbows.
 - b. Outdoor unit sizes 24 and larger: Up to 100 feet total length, up to 100 feet height difference, up to 10 long-radius elbows
- L. Unit Electrical:
 - 1. Field Connection: Single point connection to power each outdoor unit and integral controls.
 - 2. Disconnecting Means: Field-installed circuit breaker or switch, complying with NFPA 70.

2.04 INDOOR, CONCEALED, MULTI-POSITION UNITS FOR DUCTING

- A. Description: Factory-assembled complete unit with components, piping, wiring, and controls required for mating to ductwork, piping, power, and controls field connections. Unit may be configured for up-flow, downflow, horizontal-left, or horizontal-right mounting positions as shown on Drawings.
- B. Cabinet:
 - 1. Material: Painted steel.
 - 2. Insulation: Closed-cell, fiberglass-free internal insulation to provide thermal resistance and prevent condensation.
 - 3. Duct Connections: Extended collar or flange, or designated exterior cabinet surface, designed for attaching field-installed ductwork.
 - 4. Internal Access: Removable panels or hinged doors of adequate size for field access to internal components for inspection, cleaning, service, and replacement.
- C. Coil Assembly:
 - 1. Coil Casing: Aluminum, galvanized, or stainless steel.
 - 2. Coil Fins: Aluminum, mechanically bonded to tubes, with arrangement required by performance.
 - 3. Coil Tubes: Copper, of diameter and thickness required by performance.
 - 4. Unit Internal Tubing: Copper tubing with brazed joints.
 - 5. Unit Internal Tubing Insulation: Closed-cell, of thickness to prevent condensation.
 - 6. Factory Charge: Dehydrated air or nitrogen.

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7. Testing: Factory pressure tested and verified to be without leaks.
- D. Drain Assembly:
1. Pan: Non-ferrous material, with bottom sloped to low point drain connection.
 2. Condensate Removal: Gravity.
 - a. If a floor drain is not available at unit, provide unit with field-installed condensate pump accessory.
 3. Field Piping Connection: Non-ferrous material.
- E. Fan and Motor Assembly:
1. Fan(s):
 - a. Direct-drive arrangement.
 - b. Single or multiple fans connected to a common motor shaft and driven by a single motor.
 - c. Fabricated from non-ferrous components or ferrous components with corrosion-resistant finish.
 - d. Wheels statically and dynamically balanced.
 2. Motor: Brushless DC or electronically commutated with permanently lubricated bearings.
 3. Motor Protection: Integral protection against thermal, overload, and voltage fluctuations.
 4. Speed Settings and Control: Multiple or variable speed with speed setting adjustable via central or wall controllers when present.
 5. External Static Settings: 0.30, 0.50, or 0.80" WG.
 6. Vibration Control: Integral isolation to dampen vibration transmission.
- F. Filter Assembly:
1. Access: Front to accommodate field installation and replacement without need for tools.
 2. Media: Poly Propylene Honeycomb Fabric (Washable).
- G. Field-Installed Unit Accessories:
2. Accessory electric heat kit mounted directly to unit air outlet connection, heat amount per Drawings, separate power supply required.
 3. Condensate pump capable of at least 10 feet of lift with drain pan level sensor and overflow switch.
- H. Unit Controls:
1. Factory-Installed Sensors:
 - a. Unit inlet air temperature.
 - b. Coil entering refrigerant temperature.
 - c. Refrigerant detection.
 2. Interlocked control sequence: Dry (volt-free contacts) contacts shall be provided to achieve interlock function; relay adapter kits may be required. Required interlock sequence(s) include-
 - a. backup heat control.
 - b. on/off control.
 - c. on/off and fault status.
 - d. THERMO-ON status (compressor operation).
- I. Refrigerant Leak Detection:
1. Integral refrigerant sensor: Factory-installed.
 2. Sequence upon leak detection:
 - a. Compressor stops.
 - b. Indoor unit fan operates regardless of setting.

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- c. Alarm indicator(s) may include sound from indoor unit or controller, flashing LED, error code or message on wall controller or central controller.
- J. Unit Electrical:
 - 1. Field Connection: Single point connection from outdoor unit provides power for indoor unit and signal for integral controls.
 - a. 3-wire plus ground 14 AWG copper wire for wire length unit up to 148 feet. Consult manufacturer installation manuals for wire sizes for longer lengths.
 - b. Unit shall have option to be powered independently from outdoor unit. Contractor responsible coordinating electrical services and additional costs.
 - 2. Disconnecting Means: Field-installed 3-pole switch, complying with NFPA 70.

2.05 HVAC SYSTEM CONTROLLERS

- A. Wired Controllers for Indoor Units
 - 1. Thermostat/Controller for Indoor Units:
 - a. Single controller capable of controlling multiple indoor units as group.
 - b. Integral room temperature sensor
 - c. Configurable LCD Touch Screen with Auto Timeout: Timeout duration shall be adjustable.
 - d. Temperature Units: Fahrenheit and Celsius.
 - e. On/Off: Turns indoor unit on or off.
 - f. Hold: Hold operation settings until hold is released.
 - g. Operation Mode: Cool, Heat, Auto, Dehumidification, Fan Only, and Setback.
 - h. Temperature Display and Set-Point: Separate set points for Cooling, Heating. Adjustable in 1-degree Fahrenheit increments between.
 - i. Fan Speed Setting: Select between available options furnished with unit.
 - j. Airflow Direction Setting: If applicable to indoor unit style, select between available options furnished with the unit.
 - k. Seven-day programmable operating schedule with up to five events per day. Operations shall include On/Off, Operation Mode, and Temperature Set-Point.
 - l. Auto Off Timer: Operates unit for an adjustable time duration and then turns unit off.
 - m. Service Notification Display: "Filter".
 - n. Service Run Tests: Limit use by service personnel to troubleshoot operation.
 - o. Error Code Notification Display: Used by service personnel to troubleshoot abnormal operation and equipment failure.
 - p. User and Service Passwords: Capable of preventing adjustments by unauthorized users.
 - q. Setting stored in nonvolatile memory to ensure that settings are not lost if power is lost.
 - r. Low-voltage power required for controller shall be powered through non-polar connections to indoor unit.

PART 3 EXECUTION

3.01 EQUIPMENT INSTALLATION, GENERAL

- A. Clearance:
 - 1. Maintain manufacturer's recommended clearances for service and maintenance.

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2. Maintain clearances required by governing code.
- B. Equipment Restraint Installation: Install equipment with seismic-restraint device. Comply with requirements for seismic-restraint devices specified in Section 23 05 48 "Vibration and Seismic Controls for HVAC."

3.02 INSTALLATION OF INDOOR UNITS

- A. Install units to be level and plumb while providing a neat and finished appearance.
- B. Unless otherwise required by HVAC system manufacturer, support ceiling-mounted units from structure above using threaded rods; minimum rod size of 3/8 inch (10 mm).
- C. Adjust supports of exposed and recessed units to draw units tight to adjoining surfaces.
- D. Protect finished surfaces of ceilings, floors, and walls that come in direct contact with units. Refinish or replaced damaged areas after units are installed.
- E. In rooms with ceilings, conceal piping and tubing, controls, and electrical power serving units above ceilings.
- F. In rooms without ceiling, arrange piping and tubing, controls, and electrical power serving units to provide a neat and finished appearance.
- G. Provide lateral bracing if needed to limit movement of suspended units to not more than 0.25 inch.

3.03 INSTALLATION OF OUTDOOR UNITS

- A. Install units to be level and plumb while providing a neat and finished appearance.
- B. Attachment to pad, bracket, or equipment supports: Install anchor bolts to elevations required for proper attachment to supported equipment.

3.04 GENERAL REQUIREMENTS FOR PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping and tubing systems. Install piping and tubing as indicated unless deviations to layout are approved on coordination drawings.
- B. Install piping and tubing in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- C. Install piping and tubing at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping and tubing above accessible ceilings to allow sufficient space for ceiling panel removal.
- E. Install piping and tubing to permit valve servicing.
- F. Install piping and tubing free of sags.
- G. Install piping and tubing to allow application of insulation.
- H. Install groups of pipes and tubing parallel to each other, spaced to permit applying insulation with service access between insulated piping and tubing.

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- I. Install sleeves for piping and tubing penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 23 05 00 "Common Work Results for HVAC."
- J. Install escutcheons for piping and tubing penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 23 05 00 "Common Work Results for HVAC."

3.05 INSTALLATION OF SYSTEM CONDENSATE DRAIN PIPING

- A. General Requirements for Drain Piping and Tubing:
 - 1. Install a union in piping at each threaded unit connection.
 - 2. Install an adjustable stainless steel hose clamp with adjustable gear operator on unit hose connections. Tighten clamp to provide a leak-free installation.
 - 3. If required for unit installation, provide a trap assembly in drain piping to prevent air circulated through unit from passing through drain piping. Comply with more stringent of the following:
 - a. Details indicated on Drawings.
 - b. Manufacturer's requirements.
 - c. Governing codes.
 - d. In the absence of requirements, comply with requirements of ASHRAE handbooks.
 - 4. Extend drain piping from units with drain connections to drain receptors as indicated on Drawings. If not indicated on Drawings, terminate drain connection at nearest accessible location that is not exposed to view by occupants.
 - 5. Provide each 90-degree change in direction with a Y- or T-fitting. Install a threaded plug connection in the dormant side of fitting or future use as a service cleanout.
- B. Gravity Drains:
 - 1. Slope piping from unit connection toward drain termination at a constant slope of not less than one percent.
- C. Pumped Drains:
 - 1. If unit condensate pump or lift mechanism is not included with an integral check valve, install a full-size check valve in each branch pipe near unit connection to prevent backflow into unit.

3.06 INSTALLATION OF REFRIGERANT PIPING

- A. Refrigerant Tubing Kits:
 - 1. Unroll and straighten tubing to suit installation. Deviations in straightness of exposed tubing shall be unnoticeable to observer.
 - 2. Support tubing as specified in Section 23 05 16 "Hangers and Supports for HVAC Piping and Equipment."
 - 3. Prepare tubing ends and make mating connections to provide a pressure tight and leak-free installation.
- B. Select system components with minimum 650 psig pressure rating.
- C. Install piping as short and direct as possible, with a minimum number of joints and fittings.
- D. Install refrigerant piping and tubing in protective conduit where installed below ground.

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- E. Unless otherwise required by HVAC system manufacturer, slope refrigerant piping and tubing as follows:
 - 1. Install horizontal hot-gas discharge piping and tubing with a uniform slope downward away from compressor.
 - 2. Install horizontal suction lines with a uniform slope downward to compressor.
 - 3. Traps to entrain oil in vertical runs are not allowed.
 - 4. Liquid lines may be installed level.
- F. When brazing, remove or protect components that could be damaged by heat. Braze pipes with a dry nitrogen purge to avoid oxidation.
- G. Before installation, clean piping, tubing, and fittings to cleanliness level required by HVAC system manufacturer.
- H. Joint Construction:
 - 1. Brazed Joints
 - a. Ream ends of tubes and remove burrs.
 - b. Remove scale, slag, dirt, and debris from inside and outside of tube and fittings before assembly.
 - c. Construct joints in accordance with AWS's "Brazing Handbook," "Pipe and Tube" Chapter.
 - d. Use Type BAg (cadmium-free silver) alloy for joining copper with bronze.
 - e. The piping being brazed shall be purged of air to remove the oxygen and filled with one of the following inert gases: oxygen-free nitrogen, helium or argon. The piping system shall be purged with an inert gas for a minimum time corresponding to five volume changes through the piping system prior to brazing. The pre-purge rate shall be at a minimum velocity of 100 feet per minute (0.508 m/s). The inert gas shall be directly connected to the tube system being brazed to prevent the entrainment of ambient air. After the pre-purge, the inert gas supply shall be maintained through the piping during the brazing operation at a minimum pressure of 1.0 psi (6.89 kPa) and a maximum pressure of 3.0 psi (20.67 kPa). The joint shall be brazed with a filler metal conforming to AWS A5.8
 - 2. Flared Joints
 - a. Flared fittings shall be installed in accordance with the manufacturer's instructions. The fitting shall be used with the tube material specified by the fitting manufacturer. The flared tube end shall be made by a tool designed for that operation and refrigerant classification.
 - 3. Soldered Joints
 - a. Use of soldered joints is prohibited within systems.
- I. Elbows: Only long-radius 90-degree elbows are allowed. Up to 15 are allowed per system; sweeping bends with 24 inch or greater radius do not count as elbow.

3.07 INSTALLATION OF PIPING AND TUBING INSULATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated. Installation to maintain a continuous vapor barrier.
- B. Insulation Installation on Pipe Fittings and Elbows:
 - 1. Install mitered sections of pipe insulation.
 - 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

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- C. Insulation Installation on Valves and Pipe Specialties:
 - 1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 - 2. When preformed valve covers are unavailable, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 - 3. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Where PVC jackets are indicated, install with 1-inch (25-mm) overlap at longitudinal seams and end joints, for horizontal applications. Seal with manufacturer's recommended adhesive.
 - 1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.
- E. Where metal jackets are indicated, install with 2-inch (50-mm) overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless steel bands 12 inches (300 mm) o.c. and at end joints.

3.08 INSTALLATION OF DUCT, ACCESSORIES, AND AIR OUTLETS

- A. Where installing ductwork adjacent to equipment, allow space for service and maintenance.
- B. Comply with requirements for metal ducts specified in Section 23 31 00 "HVAC Ducts and Casings."
- D. Comply with requirements for air duct accessories specified in Section 23 33 00 "Air Duct Accessories."

3.09 IDENTIFICATION

- A. Identify system equipment, piping, tubing, and valves. Comply with requirements for identification specified in Section 23 05 53 "Identification for HVAC Piping and Equipment."

3.10 STARTUP SERVICE

- A. Installer shall complete system startup service according to manufacturer's written instructions.
- B. Startup checks shall include, but not be limited to, the following:
 - 1. Check control communications of equipment and each operating component in system(s).
 - 2. Check each outdoor unit's power supply is connected 12 to 24 hours before startup of system.
 - 3. Check each indoor unit's response to demand for cooling and changes to airflow settings.
 - 4. Check each indoor unit and outdoor unit for proper condensate removal.
- C. System Operation Report:
 - 1. After completion of startup service, manufacturer shall issue a report for each separate system.

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2. Report shall include complete documentation describing each startup check, the result, and any corrective action required.

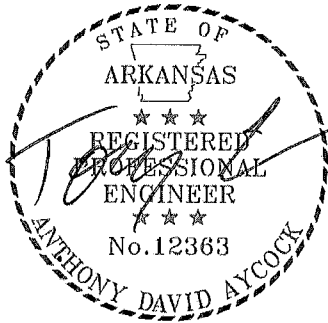
3.11 ADJUSTING

- A. Adjust equipment and components to function smoothly and lubricate as recommended by manufacturer.
- B. Adjust initial temperature set points. Adjust initial airflow settings and discharge airflow patterns in accordance with Drawings or manufacturer specifications.
- C. Set field-adjustable switches according to HVAC system manufacturer's written instructions, and as indicated.

END OF SECTION

The Engineer of Record for Division 26 of the State Data Center West UPS Replacement, SAS / Office of State Technology, Little Rock, Arkansas, DBA Project # 4702501RLF (P&P Job No. 26-006) is:

10-5-24
Date



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STATE DATA CENTER WEST UPS REPLACEMENT

SECTION 26 05 00 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Basic Electrical Requirements specifically applicable to Division 26 Sections, in addition to Division 1 - General Requirements.

1.2 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, 2017 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.

1.3 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.

1.4 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

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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.

1.5 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.

1.6 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.

1.7 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" reproducibles, legibly and accurately marked to indicate all changes, additions, deletions, etc., from the contract drawings.

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1.8 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.

1.9 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 occur, the most stringent requirement shall apply.

PART 2 - PRODUCTS

2.1 UL LISTING

- A. Where the Underwriter's Laboratories have an applicable standard, the product shall be listed with UL and shall be so marked.

2.2 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.

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PART 3 - EXECUTION

3.1 600 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.

3.2 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.

3.3 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.

3.5 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.

3.6 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.

3.7 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

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elsewhere, then the conductor's color coding shall be changed.

3.8 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.

3.9 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.

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- 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 26 05 00

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SECTION 26 05 01 - ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 0 Specification sections, apply to work specified in this section.

1.2 REGULATORY REQUIREMENTS

- A. Conform to the requirements of NFPA 70 - National Electrical Code.

1.3 DESCRIPTION OF WORK

- A. The extent of general building demolition work is shown on drawings. Coordinate the required electrical work with the general demolition.
- B. Demolition includes removal and disposal of demolished materials, as shown on drawings and herein specified.
- C. Interior demolition includes work in crawl spaces, work above ceilings, finishes, and removal and disposal of demolished materials, as shown on drawings and herein specified.
- D. The Owner shall have the option of retaining any items removed. The Contractor shall dispose of all material off site, unless directed otherwise by Owner.

1.4 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 of 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 electrical services, lighting, 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

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authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing fire 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 services to that area.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Remove all branch and feeder conduit and wire back to panelboards.
 1. Where walls, ceilings, or floors are to remain, remove all devices, and wire where indicated. Provide blank cover plate at outlet box or patch wall to match existing finish as directed by the issued documents and/or the Architect/Engineer.
 2. All items shown to remain active shall be furnished with necessary accessible junction boxes and all conduit and wire as required to maintain circuit continuity.
 3. All outlet boxes which must be removed due to demolition but which must remain active in order to maintain circuit continuity shall be relocated into ceilings or walls and shall be accessible.
 4. All material, fixtures, and equipment to be reused shall be removed and stored on site. Before reinstallation all items are to be cleaned, tested, and prepared for re-use. Fixtures shall be re-lamped and new ballasts installed.
 5. Correct existing directories of load centers, panelboards, and switchboards where circuits are removed and/or added. Corrections to existing directories of load centers and panelboards shall be neatly handwritten. Nameplates are required at switchboards.
 6. Conduit in a concrete slab or that is not shown to be reused, may be abandoned provided as follows:
 - a. Conduits in slab shall be cut off at top of slab.
 - b. Underground conduits shall be removed to 12 inches below grade before being abandoned.
 7. Fire seal all holes in fire and/or smoke walls and floors where conduits are removed.
- B. Remove all accessible low-voltage cables that are not to be reused.
 1. This includes data, telephone, television, audio/visual, intercom, fire alarm, security, access control, public address, and temperature control cables.
 2. Fire seal holes where these cables penetrated fire and/or smoke walls and floors.

3.2 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. Remove and dispose of interior demolition debris only.
 2. 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 off site.
- C. Store items that Owner wishes to retain as directed by the Owner.

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3.3 OUTAGES

- A. The Contractor shall schedule all outages with the Owner at least two weeks in advance. Owner has the right to approve or disapprove any scheduled outages. Contractor will schedule the outage at the Owner's convenience. Contractor shall pay all costs, including overtime, necessary for the outage work schedule.

END OF SECTION 26 05 01

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SECTION 26 05 02 - EQUIPMENT WIRING SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Electrical connections to plumbing, appliances, and mechanical equipment specified under other sections or Owner furnished equipment.

1.2 RELATED SECTIONS

- A. Section 26 05 19 - Building Wire and Cable.
- B. Section 26 05 33 – Conduit and Boxes.

1.3 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.

1.4 SUBMITTALS

- A. Submit under provisions of Division 0 and Section 26 05 00.
- 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.

1.5 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.

1.6 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

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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

2.1 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.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 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

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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 26 05 02

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SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLE

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Building wire and cable.
- B. Wiring connectors and connections.

1.2 RELATED SECTIONS

- A. Section 26 05 33 – Raceway and Boxes for Electrical Systems.
- B. Section 26 05 53 – Identification for Electrical Systems.

1.3 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.

1.4 SUBMITTALS

- A. Submit under provisions of Division 1 and Section 26 05 00.
- 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.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section.

1.6 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.

1.7 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.

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- 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 is not shown, and destination only is indicated, determine exact routing and lengths required.

1.8 COORDINATION

- A. Determine required separation between cable and other work.
- B. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS - BUILDING WIRE AND CABLE

- A. Triangle.
- B. American.
- C. Southwire
- D. Engineer Approved.

2.2 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).
- E. Aluminum conductors may be used for panel feeders #4/0 awg and larger. Refer to the electrical plans for locations approved for aluminum feeders.

2.3 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.

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- 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

3.1 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.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.3 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.

3.4 INSTALLATION

- A. Install products in accordance with manufacturer's 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.

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- 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. Common neutral wire shall only be used for circuits fed from a common trip multi-pole circuit breaker.
- U. On single phase, three wire systems do not use a common neutral for more than 2 circuits. Common neutral wire shall only be used for circuits fed from a common trip multi-pole circuit breaker.
- 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.

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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	Switchlegs Violet
Phase B	Red	Pink
Phase C	Blue	
Ground	Green	
Neutral	White	
Isolated Ground	Green with Yellow Stripe	

The same color code shall be used throughout the building, including type MC cable whips.

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.

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- 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.

3.5 INTERFACE WITH OTHER PRODUCTS

- A. Identify wire and cable under provisions of 26 05 53 – 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.

3.6 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.

3.7 USE OF THE FOLLOWING IS PROHIBITED

- A. Aluminum conductors smaller than #4/0 awg.
- B. Wire nuts in damp or wet locations.
- C. Copper-clad aluminum conductors.

END OF SECTION 26 05 19

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SECTION 26 05 26 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Grounding electrodes and conductors.
- B. Equipment grounding conductors.
- C. Bonding.
- D. Conduit.

1.2 RELATED SECTIONS

- A. Section 26 05 33 - Conduit.
- B. Section 26 05 19 - Building Wire and Cable.

1.3 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. UL 467 - Grounding and Bonding Equipment.

1.4 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: No greater than 5 ohms.

1.5 SUBMITTALS

- A. Submit under provisions of Division 0 and Section 26 05 00
- 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.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Division 0.
- B. Accurately record actual locations of grounding electrodes.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section.

1.9 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc.

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PART 2 - PRODUCTS

2.1 WIRE

- A. Material: Stranded or solid copper.
- B. Grounding Electrode Conductor: Size to meet NFPA 70 requirements.
- C. Wire shall conform to Section 26 05 19.

2.2 CONDUIT

- A. Conduit shall conform to Section 26 05 33.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install Products in accordance with manufacturer's instructions.
- B. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus or bushing.
- C. 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.
- D. Neutrals shall be grounded in accordance with the National Electrical Code.
- E. All metal raceway system, including cabinets, conduit and boxes, shall be grounded in accordance with the National Electrical Code.
- F. An equipment ground conductor shall be installed in all conduits.
- G. Install a grounding electrode and grounding electrode conductor at the service equipment, meter, current transformer cabinet, and at each dry type transformer.
- H. 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.
- I. Ground all metal non-current carrying equipment. Ensure that bonding breaks through paint to bare metallic surface of all painted metallic equipment.

3.2 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 26 05 26

STATE DATA CENTER WEST UPS REPLACEMENT

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Conduit, cable and equipment supports.
- B. Anchors and fasteners.

1.2 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. NECA - National Electrical Contractors Association.
- C. UL 514B - Fittings for Conduit and Outlet Boxes.

1.3 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.

1.4 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

2.1 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

3.1 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.

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- 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 26 05 29

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SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 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.

1.2 RELATED SECTIONS

- A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- B. Section 26 05 53 - Identification for Electrical Systems.
- C. Section 26 27 26 - Wiring Devices.
- D. Section 26 05 02 - Equipment Wiring Systems.

1.3 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.

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- 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.

1.4 DESIGN REQUIREMENTS

- A. Conduit Size: ANSI/NFPA 70.

1.5 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.

1.6 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.

1.7 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.

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1.8 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.

1.9 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

2.1 CONDUIT REQUIREMENTS

- A. Minimum Size: 3/4 inch unless otherwise specified.
- B. Underground Installations:
 - 1. Conduit installed below grade shall be **Schedule 80 PVC** (schedule 40 will not be accepted). 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". This requirement applies to all conduits, including conduits provided by Division 23.
- 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.

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- 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 23 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 23 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.

2.2 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.

2.3 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".

2.4 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.

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- D. Maximum Length: 6'-0".

2.5 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.

2.6 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.

2.7 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.

2.8 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 for 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.

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10. Television outlet boxes shall be Raco #246, 4-1/16-inch box with #836 device cover ring. Telephone outlet boxes shall be Raco #256.
 11. Outlet boxes for interior exposed work in unfinished areas shall be Raco #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

2.9 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

3.1 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.
- 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.

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- 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.
- AA. All flexible conduit in Mechanical Rooms and outside shall be liquidtight flexible conduit.

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- 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 seal-offs 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.

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- 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. Pullboxes 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.

3.2 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 locknuttled 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.

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- 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.

3.3 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".

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- T. The use of external cover-clips 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 26 05 33

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SECTION 26 05 53 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Nameplates and labels.
- B. Wire and cable markers.

1.2 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

- A. Submit under provisions of Division 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.

1.4 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

2.1 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.

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2.2 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.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive nameplates and labels.

3.2 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.

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- 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 26 05 53

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SECTION 26 27 26 - WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wall switches.
- B. Receptacles.
- C. Occupancy Sensors.
- D. Device plates.

1.2 RELATED SECTIONS

- A. Section 26 0533 - Boxes.
- B. Section 26 0553 - Electrical Identification: Labels on computer outlets.

1.3 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.

1.4 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.

1.5 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.

1.6 EXTRA MATERIALS

- A. Provide protective rings and split nozzles as required and as specified.

PART 2 PRODUCTS

2.1 WALL SWITCHES

- A. Single Pole Switch:
 - 1. Hubbell #1221.
 - 2. Pass & Seymour #20AC1.
 - 3. Cooper Wiring Devices #2221.
 - 4. Leviton #1221.

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- 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.

2.2 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.

2.3 OCCUPANCY SENSORS

- A. APPROVED MANUFACTURES
 - 1. Hubbell
 - 2. WattStopper
 - 3. Engineer approved
- B. TYPE: Sensors shall be "Dual Technology" unless otherwise noted on plans

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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.

2.4 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 be 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

3.1 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.

3.2 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean debris from outlet boxes.

3.3 INSTALLATION

- A. Install 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

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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.

3.4 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.

3.5 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.

3.6 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

END OF SECTION 26 27 26

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SECTION 26 28 16 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Fusible switches.
- B. Non-fusible switches.
- C. Fuses.
- D. Enclosed circuit breakers.

1.2 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.

1.3 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.

1.4 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.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with NECA Standard of Installation.

1.6 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by UL as suitable for purpose specified and shown.

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PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Disconnect switches shall be heavy duty, as manufactured by,
 - 1. Square D
 - 2. General Electric
 - 3. Siemens ITE
 - 4. Cutler-Hammer

2.2 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.

2.3 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.

2.4 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

3.1 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.

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- 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.

3.2 FIELD QUALITY CONTROL

- A. Check tightness of conductor lugs using calibrated torque wrench.

END OF SECTION 26 28 16

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SECTION 26 33 63 - SOLID STATE UNINTERRUPTIBLE POWER SUPPLY (OWNER-PROVIDED, CONTRACTOR-INSTALLED)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Division 01 General Requirements, and other applicable specification sections in the Project Manual apply to the work specified in this Section.

1.2 SUMMARY

- A. Scope: Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation for a solid-state uninterruptible power supply (UPS) as required for the complete performance of the work, and as shown on the Drawings and as herein specified.
- B. Section Includes: This specification describes a three-phase, on-line, continuous operation, solid state uninterruptible power supply (UPS). The UPS shall operate as an active power control system, working in conjunction with the building electrical system to provide power conditioning and on-line power protection for the critical loads.

1.3 REFERENCES

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.
- B. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - 1. ANSI/IEEE C62.41, "Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits" (copyrighted by IEEE, ANSI approved)
- C. International Organization for Standardization (ISO):
 - 1. ISO 9001, "Quality Management Systems - Requirements."
 - 2. ISO 14001, "Environmental Management Systems - Requirements with Guidance for Use"
- D. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA PE 1, "Uninterruptible Power Systems (UPS) - Specification and Performance Verification"
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 70, "National Electrical Code" (copyrighted by NFPA, ANSI approved) - hereafter referred to as NEC
- F. Underwriters Laboratories, Inc. (UL):
 - 1. UL 1778, 5th edition, "Standard for Uninterruptible Power Supply Equipment" (copyrighted by UL, ANSI approved)
 - 2. UL 891, "Standard for Dead-Front Switchboards" (copyrighted by UL, ANSI approved)
 - 3. UL 1558, "Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear"

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- G. International Electrical Commission (IEC):
 - 1. IEC 62040-1: 2008/A1: 2013 "General and safety requirements for UPS"
 - 2. IEC 62040-2: 2006/AC:2006 Category C2, "Electromagnetic compatibility (EMC) requirements"
 - 3. IEC 62040-3, "Uninterruptible Power Systems - Method of Specifying the Performance and Test Requirements"
- H. FCC:
 - 1. FCC part 15 Subpart B Class A.

1.4 SUBMITTALS

- A. Proposal Submittals:
 - 1. System bill of materials (level one).
 - 2. Product technical specifications or equipment brochures.
 - 3. Product specifications.
 - 4. System operation diagram.
 - 5. Installation manual.
 - 6. Drawings for requested optional accessories.
- B. Delivery Submittals:
 - 1. Installation manual, which includes unpacking and installation of all systems.
 - 2. Operation manual, which includes start-up and operating instructions.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer Experience: The manufacturer shall have experience in the design, manufacture, and testing of UPS systems.
 - 2. ISO 9001 Certification: The manufacturer shall be ISO 9001 & 14001 certified. Certification assures that the vendor's quality control & environmental measures have been certified by an accredited registrar and meet internationally recognized standards.
 - 3. Installer Qualifications: Installer shall be a firm that shall have successful installation experience with projects utilizing solid state UPS similar in type and scope to that required for this Project.
- B. Factory Testing:

Prior to shipment the manufacturer shall complete a documented test procedure to test functions of the UPS and batteries (via a discharge test), when supplied by the UPS manufacturer, and warrant compliance with this Section.
- C. Pre-installation Conference:

Prior to commencing the installation, meet at the Project site to review the material selections, installation procedures, and coordination with other trades. Pre-installation conference shall include, but shall not be limited to, the Contractor, the Installer, and any trade that requires coordination with the work. Date and time of the pre-installation conference shall be acceptable to the Owner and the Architect/Engineer.
- D. Source Responsibility:

Materials and parts comprising the UPS shall be new, of current manufacture, and shall not have been in prior service, except as required during factory testing. Active electronic devices shall be solid state and shall not exceed the manufacturer's recommended tolerances for temperature or current to ensure maximum reliability. Semiconductor devices shall be sealed. Relays shall be provided with dust covers. The manufacturer

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shall conduct inspections on incoming parts, modular assemblies, and final products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and lot number, if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
- C. Products shall be packaged in a manner to prevent penetration by debris and to allow safe delivery by modes of ground transportation and air transportation where specified.
- D. Prior to shipping, products shall be inspected at the factory for damage.
- E. Equipment shall be protected against extreme temperature and humidity and shall be stored in a conditioned or protected environment.
- F. Equipment containing batteries shall not be stored for a period exceeding six months without powering up the equipment for a period of eight hours to recharge the batteries.

1.7 PROJECT CONDITIONS

Do not install the solid-state UPS until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

- A. Environmental requirements:
 - 1. Storage ambient temperature: -15 °C to 40 °C (5 °F to 104 °F)
 - 2. Operating ambient temperature: 0 °C to 40 °C (32 °F to 104 °F)
 - 3. Operating relative humidity: 0 to 95%, non-condensing.
 - 4. Elevation derating according to IEC 62040-3:
 - a. Up to 1000 m (3300 feet): 1.000
 - b. Up to 1500 m (5000 feet): 0.975
 - c. Up to 2000 m (6600 feet): 0.950
 - d. Up to 2500 m (8300 feet): 0.925
 - e. Up to 3000 m (10000 feet): 0.900

1.8 WARRANTY

- A. Special Warranty: The Contractor shall warrant the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for period indicated below. This special warranty shall extend the one-year period of limitations contained in the General Conditions. The special warranty shall be countersigned by the Installer and the manufacturer.
 - 1. UPS: The UPS shall be covered by a full parts and labor warranty from the manufacturer for a period of 12 months from date of installation or acceptance by the Owner or 18 months from date of shipment from the manufacturer, whichever occurs first.
 - 2. Battery: The battery manufacturer's warranty shall be passed through to the final Owner and shall have a minimum period of one year.

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- B. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 PRODUCT

2.1 MANUFACTURER

- A. Schneider Electric: Galaxy VS or approved equal.

2.2 SYSTEM DESCRIPTION

- A. General:
1. The UPS shall be housed in a freestanding cabinet with casters and contain smart battery modules. Maintenance shall be possible from the front.
 2. The UPS shall be in a self-contained cabinet and shall be available in the following models:
 - a. 60 kW, 80 kW, and 100 kW UPS for up to 5 internal 9 Ah smart modular battery strings. Modular battery cabinets shall be available for increased runtime.
 3. Output power factor: 1.0.
 4. Back-feed contactor included.
 5. The UPS shall support installation with either 3-wire (L1, L2, L3, PE) WYE or 4-wire (L1, L2, L3, N, PE) WYE.
 6. The UPS shall contain a static bypass switch and a display. The UPS shall be of the double conversion on-line topology with power factor corrected inputs.
 - a. The UPS shall be sized for 60 kVA/kW load at a power factor of 1 for 5 minutes of runtime.
 7. The UPS shall be using a modular design in which power functions, static bypass switch, and system control are embedded in modules for optimal MTTR.
 8. The UPS shall have a short circuit rating of 65 kA RMS.
 9. The UPS shall be tested against EMC (electromagnetic compatibility) according to FCC part 15 Subpart B Class A.
- B. System Input:
1. Nominal input voltage rating: 480 V 3-phase.
 2. Input voltage window: 408 V to 552 V.
 3. Input frequency range: 40-70 Hz.
 4. Input power factor:
 - a. 0.99 for load greater than 50%
 - b. 0.95 for load greater than 25%
 - c. NOTE: For a UPS with N+1 redundant power module, the input power factor is: 0.99 at 100% load.
 5. Total harmonic distortion:
 - a. 60 kW, 80 kW, and 100 kW UPS for up to 5 modular battery strings: < 3% at full linear load (symmetrical).
- C. System Output:
1. Nominal output voltage rating: 208 V output with a maintenance bypass cabinet with output transformer installed for UPSs with up to 4 battery strings.
 2. Output voltage tolerance: +/- 1% for symmetrical loads.
 3. Dynamic load response:
 - a. +/- 5% after 2 ms
 - b. +/- 1% after 50 ms
 4. Output frequency: 50 or 60 Hz.

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5. Output voltage harmonic distortion:
 - a. For UPSs for up to 5 internal 9 Ah smart modular battery strings:
 - 1) <1% at 100% linear load
 - 2) <3% at 100% non-linear load
6. Overload capability:
 - a. 150% for 1 minute (normal operation)
 - b. 125% for 10 minutes (normal operation)
 - c. 125% for 1 minute (battery operation)
 - d. 125% continuous (bypass operation)
 - e. 1000% for 100 milliseconds (bypass operation)
7. Output power factor: 1.0
8. Audible noise at full load:
 - a. UPSs for up to 5 modular battery strings:
 - 1) 20-60 kW UPS:
 - a) 49 dBA at 70% load
 - b) 54 dBA at 100% load

2.3 OPERATION MODES

- A. Normal: In normal operation, the UPS supports the load with conditioned power.
- B. Battery: If the utility/mains supply fails, the UPS transfers to battery operation and supports the load with conditioned power from the batteries.
- C. Requested Static Bypass: The UPS can be transferred to requested static bypass following a command from the display. During static bypass operation, the load is supplied from the bypass source. If a fault is detected, the UPS will transfer to normal operation or forced static bypass operation. If there is an interruption to the utility/mains power supply during requested static bypass operation, the system will transfer to battery operation.
- D. Forced Static Bypass: The UPS is in forced static bypass following a command from the UPS system or because the user has pressed the inverter OFF button on the UPS. During forced static bypass operation, the load is supplied directly by the bypass source.
- E. Internal Maintenance Bypass: When the internal maintenance bypass breaker (IMB) is closed, the UPS transfers to internal maintenance bypass operation. The load is supplied with unconditioned power from the bypass source. Service can be performed only on power modules, the static bypass switch module, and on the controller box during internal maintenance bypass operation. The internal maintenance bypass breaker IMB can only be used in single systems with no external maintenance bypass breaker.
- F. External Maintenance Bypass: When the maintenance breaker (MBB) is closed in the external maintenance bypass panel/cabinet, the UPS transfers to external maintenance bypass operation. The load is supplied with unconditioned power from the bypass source. Service can be performed on the entire UPS during external maintenance bypass.
- G. Static Bypass Standby: The UPS enters static bypass standby if the UPS is prevented from entering forced static bypass and the other UPS units of the parallel system can support the load. In static bypass standby, the output of the specific UPS is off. The UPS automatically changes to the preferred operation mode when possible. Note: If the other UPS units cannot support the load, the parallel system enters forced static bypass. The UPS in static bypass standby will then transfer to forced static bypass.
- H. ECO Mode: ECO mode allows the UPS to be configured to use requested static bypass, with the load supplied through the bypass, as the preferred operation mode under

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predefined circumstances. If a fault is detected (bypass voltage out of tolerance, output voltage out of tolerance, etc.), the UPS will immediately transfer to normal operation or forced static bypass. The main advantage of ECO mode is a reduction in the consumption of electrical power. In case of interruption to the utility/mains supply, the UPS transfers to inverter operation for a continuous supply of the load. The batteries are charged when the UPS is in ECO mode.

- I. EConversion Mode: EConversion allows the UPS system to supply the active part of the load through the static bypass. The inverter is kept running in parallel with the bypass source and supplies the reactive part of the load. The input power factor of the UPS is, regardless of the load power factor, maintained close to unity as the reactive part of the load is significantly reduced in the UPS input current. In case of an interruption to the utility/mains supply, the inverter immediately maintains the output voltage so that breaks or drops during the transfer from EConversion mode are practically eliminated. The batteries are charged when the UPS is in EConversion mode.

2.4 COMPONENTS

A. Rectifier:

1. The UPS shall include an active power factor corrected rectifier.
2. The input current limiter shall be designed to:
 - a. Fast battery recharging:
 - 1) 80% of the UPS output rating at 0-40% load.
 - 2) 20% of the UPS output rating at 100% load.
 - b. Provide regulation with input deviation of up/down to +/-15% of the nominal input voltage.
3. The battery charging shall keep the float voltage of 545 VDC for 40 battery blocks.
4. The battery charging voltage shall be compensated against temperature variations (battery temperature compensation) to always maintain optimal battery float charging. Temperature compensation rate shall be 3.3 mV/degree/cell for ambient temperatures > 25 °C and 0mV/°C for ambient temperatures < 25 °C.
5. Input power factor shall be 0.98 lagging at 100% load without the use of passive filters. Rectifier shall employ electronic waveform control technology to maintain the current sinusoidal.
6. Pulse Width Modulation (PWM) current control shall be used. Digital Signal Processors (DSP) shall be used for all monitoring and control tasks. Analog control shall not be acceptable.

B. Inverter:

1. The inverter shall consist of fast switching IGBTs.
2. The inverter shall be a 3-level hybrid inverter.
3. Inverter shall be PWM controlled using DSP logic. Analog control shall not be acceptable.
4. The inverter modules shall be rated for an output power factor at 1.0.
5. Nominal output voltage shall be 480 V 3-phase.

C. Static Bypass Switch:

1. The static bypass switch shall consist of fully rated Silicon Controlled Rectifiers (SCRs). Partly rated SCRs with a wraparound contactor shall not be acceptable.
2. The static bypass switch shall be of modular design with connectors at the rear.
3. The static bypass switch shall automatically transfer the load to bypass supply without interruption after the logic senses one of the following conditions:
 - a. Inverter overload beyond rating.
 - b. Battery runtime expired and bypass available.
 - c. Inverter inoperable.

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- d. Control system inoperable.
- 4. The static bypass switch shall automatically retransfer from bypass to the inverter.
- 5. The inverter shall be active (on).
- 6. The static bypass switch shall be equipped with a manual means of transferring the load to bypass and back to inverter.

D. Battery:

- 1. General:
 - a. The UPS shall contain:
 - 1) At least 5 internal, parallel 9 Ah smart modular battery strings.
 - b. End of discharge voltage at full load: 384 VDC for 40 battery blocks.
 - c. Battery charge current limit: The selection shall be made from the display. The battery charge current limit should be software and hardware current limit.
 - d. The battery charging circuit shall remain active when the PFC operates normally.
 - e. The standard batteries shall be embedded in modules that contain battery blocks, a monitoring board, fuse, and temperature sensors.
 - f. The battery modules shall be user swappable using a simple, front access disconnecting device integrated in the UPS cabinet.
 - g. The battery solution shall be scalable and redundant.
- 2. Battery Monitoring:
 - a. Battery monitoring shall be provided at system level.
 - b. The UPS shall incorporate a battery capacity test that will determine the available runtimes.

2.5 MECHANICAL

- A. The UPS shall be housed in a freestanding cabinet with casters.
- B. Dust filter shall be available.
- C. The cable entry shall be from the rear of the UPS.
- D. The cabling section shall be large enough to accept copper cables.
- E. The UPS shall have the following dimensions:
 - 1. 20-100 kW UPS for up to 5 internal 9 Ah smart modular battery strings: 1970x550x847 mm (77.56x21.65x33.35 in) and shall meet an ingress level of minimum IP20.
- F. The UPS shall have a seismic kit option.

26 DISPLAY, CONTROLS, AND ALARMS

- A. A color touch screen display shall be located on the front of the UPS.
- B. The following metered data shall be available on the display:
 - 1. Year, month, day, hour, minute, second of occurring events.
 - 2. Input voltage.
 - 3. Input current.
 - 4. Input frequency.
 - 5. Output voltage.
 - 6. Output current.
 - 7. Output frequency.
 - 8. Battery voltage.

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9. Battery current.
 10. Battery temperature.
- C. The display shall allow the user to display active alarms.
- D. The following controls or programming functions shall be accomplished by use of the display unit.
1. Silence audible alarm.
 2. Set the alphanumeric display language.
 3. Display and set the date and time.
 4. Enable or disable the automatic restart feature.
 5. Transfer load to and from static bypass.
 6. Test battery condition on demand.
- E. LEDs for indication of operation mode.
- F. Push button user controls:
1. Inverter ON.
 2. Inverter OFF.
- G. For purposes of remote communications with the UPS, a network management card shall be integrated.

2.7 ACCESSIBILITY

- A. Software and Connectivity:
1. The Ethernet Web/SNMP Adaptor shall allow one or more network management systems (NMS) to monitor and manage the UPS in TCP/IP network environments. The management information base (MIB) shall be provided in MIB formats. The SNMP interface adaptor shall be connected to the UPS via the RJ45 serial port on the standard communication interface board.
 2. The UPS shall offer a Modbus interface.
 3. The UPS shall be equipped with eight dry contacts (four inputs, four outputs) for user-assignable alarms or remote monitoring.
- B. Remote UPS Monitoring:
Three methods of remote UPS monitoring shall be available:
1. Smartphone application: With remote monitoring and live system status and remote alarms.
 2. Web monitoring: Remote monitoring shall be available via a web browser such as Internet Explorer.
 3. Simple Network Management Protocol (SNMP): Remote UPS monitoring shall be possible through a standard MIB II compliant platform.
- C. Software Compatibility:
The UPS manufacturer shall have available software to support shutdown and or remote monitoring for the following systems.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect/Engineer, of any conditions detrimental to the proper and timely completion of

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the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

1. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

3.2 INSTALLATION

Preparation and installation shall be in accordance with reviewed product data, final shop drawings, manufacturer's written recommendations, and as indicated on the Drawings.

3.3 MANUFACTURER ASSISTED START-UP

A manufacturer assisted UPS start-up shall be available, manufacturer trained service personnel shall perform the following inspections, test procedures, and on-site training:

- A. Visual Inspection:
 1. Inspect equipment for signs of damage.
 2. Verify installation per manufacturer's instructions.
 3. Inspect cabinets for foreign objects.
 4. Inspect batteries.
- B. Mechanical Inspection:
 1. Check internal power wiring connections on all UPSs and external battery cabinets.
 2. Check tightness on terminal screws, nuts, and/or spade lugs on all UPSs and external battery cabinets.
 3. Check that all smart battery modules in the UPS and the modular battery cabinets are fastened to the shelves.
- C. Electrical Inspection:
 1. Verify correct input and bypass voltage.
 2. Verify correct phase rotation of all input and bypass connections.
 3. Verify correct UPS control wiring and terminations.
 4. Verify voltage of batteries.
 5. Verify neutral and ground conductors are properly landed.
- D. Site Testing:
 1. Ensure correct system start-up.
 2. Verify correct firmware control functions.
 3. Verify correct firmware bypass operation.
 4. Verify correct internal maintenance breaker operation.
 5. Verify system set points.
 6. Verify correct inverter operation and regulation circuits.
 7. Simulate input power failure.
 8. Verify correct charger operation.
 9. Document, sign, and date all test results.
- E. On-Site Operational Training: During the manufacturer assisted start-up, operational training for site personnel shall include LED indicators, start-up and shutdown procedures, maintenance bypass and AC disconnect operation, and alarm information.

3.4 MANUFACTURER FIELD SERVICE

- A. Worldwide Service: The UPS manufacturer shall have a worldwide service organization available, consisting of factory trained field service personnel to perform start-up, preventative maintenance, and service of the UPS system and power equipment. The

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service organization shall offer 24 hours a day, 7 days a week, 365 days a year service support.

3.5 DEMONSTRATION

Provide the services of a manufacturer-authorized service representative of the manufacturer to provide start-up service and to demonstrate and train the Owner's personnel.

- A. Test and adjust controls and safety. Replace damaged or inoperable controls and equipment.
- B. Train the Owner's maintenance personnel on procedures and schedules related to start-up and shutdown, troubleshooting, servicing, and preventive maintenance.
- C. Review data in operation manual with the Owner's personnel.

3.6 MAINTENANCE

- A. Maintenance contracts: A complete offering of preventative and full-service maintenance contracts for the UPS system and the battery system shall be available. All contract work shall be performed by Schneider Electric-trained service personnel.
- B. The manufacturer shall, upon request, provide spare parts kits for the UPS in a timely manner as well as provide access to qualified and trained service personnel to provide preventative maintenance and service on the UPS when required.
- C. The UPS shall be repairable by replacing standard subassemblies requiring no adjustments.
- D. UPS subassemblies shall be accessible from the front. UPS design shall provide maximum reliability and minimum MTTR (mean time to repair). To that end, the UPS shall be equipped with a self-test function to verify correct system operation. The self-test function shall identify the subassembly requiring repair in the event of an alarm condition. The electronic UPS control and monitoring assembly shall therefore be fully microprocessor-based, thus doing away with potentiometer settings. This shall allow:
 - 1. Auto-compensation of component drift.
 - 2. Self-adjustment of replaced subassemblies.
 - 3. Extensive acquisition of information vital for computer-aided diagnostics (local or remote).
 - 4. Socket connection to interface with computer-aided diagnostics system.

3.7 TRAINING

UPS service training workshop: A UPS service training workshop shall be available from the UPS manufacturer. The service training workshop shall include a combination of lecture and practical instruction with hands-on laboratory sessions. The service training workshop shall include instruction about safety procedures, UPS operational theory, sub-assembly identification and operation, system controls and adjustment, preventative maintenance, and troubleshooting.

END OF SECTION

