

PROJECT MANUAL
FOR
**GREER ELEMENTARY SCHOOL BACKUP
GENERATOR INSTALLATION PROJECT**

**190 LAMBS LN.
CHARLOTTESVILLE, VA 22901**

IFB #2022-IFB-30315-33

**THE COUNTY SCHOOL BOARD OF
ALBEMARLE COUNTY, VIRGINIA**

FEBRUARY 04, 2022



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INVITATION FOR BIDS
Greer Elementary School Generator
IFB No. 2022-IFB-3031533

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**NOTICE OF
INVITATION FOR BIDS
IFB No. 2022-IFB-30315-33**

Sealed bids are invited for the **Installation of the Owner Provided Backup Generator Project at Greer Elementary School, 190 Lambs Ln., Charlottesville VA. 22901**

Sealed bids will be received at the Albemarle County Purchasing Office, Room 248, Albemarle County Office Building, 401 McIntire Road, Charlottesville, Virginia. The deadline for submitting bids is **3:00 P.M.**, as determined by the Purchasing Agent, on **Tuesday, March 15, 2022**. The bids will be opened publicly and read aloud immediately following the receipt of bids. If the County of Albemarle is closed for business at the time scheduled for bid opening, for whatever reason, sealed bids will be accepted and opened on the next scheduled business day, at the originally scheduled time.

The estimated construction cost range for this project is \$50K-to \$250K. A Bid Bond is required for any bid which exceeds \$100,000. **The “Time for Completion” will be as detailed in the Bid Form.**

Bids to be considered shall be received in a sealed envelope marked as follows: County of Albemarle, Purchasing Office, Room 248, Albemarle County Office Building, 401 McIntire Road, Charlottesville, VA 22902 / Contract: Greer Elementary School Backup Generator Installation Project/ IFB No. 2022-30315-33

Procedures for submitting a bid, claiming an error, withdrawal of bids, and other pertinent information are contained in the Instructions to Bidders, which is part of the Invitation for Bids. Withdrawal due to error in bid shall be permitted in accord with Section 9 of the Instructions to Bidders and §2.2-4330A (i), Code of Virginia. The Owner reserves the right to reject any or all bids.

A pre-bid conference will be held at Greer Elementary School, 190 Lambs Ln., Charlottesville VA on Monday, February 28, 2022, at 3:30PM. Attendance will be optional; however, highly recommended for those submitting a bid.

The contract shall be awarded on a lump sum basis as follows: **the Total Base Bid Amount plus such successive Additive Bid Items as the Owner in its discretion decides to award.**

Contractor registration in accordance with Title 54.1, Chapter 11, of the Code of Virginia, is required. See the Instructions to Bidders for additional qualification requirements.

The Invitation for Bids for the above project, including the drawings and the specifications prepared by **2RW Consultants, Inc.** and containing the information necessary for bidding, may be downloaded online from the Albemarle County Purchasing web site at www.albemarle.org/purchasing. Please note that Bidders are responsible to check the Purchasing web site and download any Addenda issued for this Bid.

The County of Albemarle does not discriminate on the basis of race, religion, color, sex, national origin, age or disability, or against faith-based organizations as defined under the Virginia Public Procurement Act on the basis of such organization’s religious or charitable character.

INSTRUCTIONS TO BIDDERS

The Invitation For Bids (IFB) consists of the Notice, this Instructions to Bidders, the Bid Form, the Pre-Bid Question Form, the Construction Contract General Conditions, the Supplemental General Conditions (if any), the Special Conditions (if any), the Forms to be used, and the Scope of Work as described by the Plans and Specifications, other documents listed in the Specifications, and any addenda which may be issued, all of which request qualified bidders to submit competitive prices or bids for providing the described work on the project.

1. **CONDITIONS AT SITE OR STRUCTURE:** Bidders shall be responsible for ascertaining pertinent local conditions such as location, accessibility, general character of the site or building, and the character and extent of existing work within or adjacent to the site. Claims, as a result of failure to have done so, will not be considered by the Owner. See Section 7 of the General Conditions entitled “Conditions at Site.”
2. **EXPLANATIONS TO BIDDERS:** Bidders may not rely on any oral explanation in regard to the meaning of drawings and specifications or oral instructions given before the award of the contract. Discrepancies, omissions or doubts as to the meaning of drawings and specifications shall be communicated in writing to the Architect/Engineer for interpretation. Bidders must use the “Prebid Question Form” provided in the bid documents. Bidders must so act to assure that questions reach the Architect/Engineer at least seven (7) days prior to the time set for the receipt of bids to allow a sufficient time for an addendum to reach them before the submission of their bids. If an addendum is required for clarification or interpretation of the Bid Documents, the addendum will be issued not later than five (5) days prior to the date set for the receipt of bids except an addendum withdrawing the invitation for bid or one which includes postponement of the date set for the receipt of bids. Any interpretation made will be in the form of an addendum to the Invitation For Bids, which will be made available to all bidders, and its receipt shall be acknowledged, in writing, by the bidder on the Bid Form.
3. **TIME FOR COMPLETION:**
 - (a) “Time for Completion” shall be designated by the Owner on the Invitation for Bids or other pre-bid documents and shall mean the number of consecutive calendar days following the issuance of the Notice to Proceed which the Contractor has to substantially complete all Work required by the Contract. In some instances, the Time for Completion may be stated in the form of a Contract Completion Date based on a stipulated date of Notice to Proceed.

Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.

- (b) When the Notice to Proceed is issued, it will state a Contract Completion Date, which has been set by the Owner based on date of the Notice to Proceed and the Time for Completion.
- (c) The Contractor, in preparing and submitting his bid, is required to take into consideration normal weather conditions. No additional compensation will be paid to the Contractor because of adverse weather conditions; however, an extension of time for abnormal weather will be considered by the Owner as indicated in the General Conditions.

4. PREPARATION AND SUBMISSION OF BIDS:

- (a) Bids shall be submitted on the forms furnished, or copies thereof, and shall be signed in ink. Erasures or other changes in a bid must be explained or noted over the signature of the bidder. Bids containing any conditions, omissions, unexplained erasures, alterations or items not called for in the proposal, or irregularities of any kind, may be rejected by the Owner as being incomplete or nonresponsive.
- (b) Each bid must give the complete legal name and full business address of the bidder and be signed by the bidder, or the bidder's authorized representative, with his usual signature. Bids by partnerships must be signed in the partnership name by one of the general partners of the partnership or an authorized representative, followed by the designation/title of the person signing. Bids by corporations must be signed with the legal name of the corporation followed by the name of the state in which it is incorporated and by the signature and title of the person authorized to bind it in this matter. The name of each person signing shall be typed or printed below the signature. A signature on a bid by a person who identifies his title as "President," "Secretary," "Agent" or other designation without disclosing the principal firm, shall be held to be the bid of the individual signing. When requested by the Owner, satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished. Trade or fictitious names may be referenced by using "t/a ___" but bids shall be in the legal name of the person or entity submitting the bid.
- (c) Bids with the bid guarantee shall be enclosed in a sealed envelope which shall be marked and addressed as indicated by the advertisement. If a contract is for one hundred twenty thousand dollars (\$120,000) or more, or if the total value of all construction, removal, repair or improvements undertaken by the bidder within any twelve-month period is seven hundred fifty thousand dollars (\$750,000) or more, the bidder is required under Title 54.1, Chapter 11, Section 1100, Code of Virginia, as amended, to be licensed in Virginia as a "Class A Contractor." If a contract is for ten thousand dollars (\$10,000) or more, but less than one hundred twenty thousand dollars (\$120,000), or if the total value of all construction, removal, repair or improvements undertaken by the bidder within any twelve-month period is one hundred fifty thousand dollars (\$150,000) or more, but less than seven hundred fifty thousand dollars (\$750,000), the bidder is required to be licensed in Virginia as a "Class B Contractor."

If the bidder is not properly licensed in Virginia at the time the bid is submitted, or if the bidder fails to provide this information on his bid or fails to promptly provide said Contractor license number to the Owner in writing when requested to do so after the opening of bids, he shall be deemed to be in violation of Section 54.1-1115 of the Code of Virginia, as amended, and his bid will not be considered.

- (d) The Board for Contractors has interpreted its regulations to mean "a licensed Contractor can bid on a contract which contains work outside his license classification(s) as long as he subcontracts those items for which he is not qualified to licensed contractors with the appropriate License Classification and the work of the second party is incidental to the contract." Therefore, the Owner may, as a part of determining whether the bidder is "responsible," require the apparent low bidder

to submit a listing of his subcontractors along with the license number and classification or specialty of each.

- (e) The bidder must also place its Employer Identification Number (SSN or FEIN) in the space provided on the Bid Form.
- (f) Every bidder organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership must be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia, as amended, or as otherwise required by law. Any bidder organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 must include in its bid the identification number issued to it by the State Corporation Commission. Any bidder that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law shall include in its bid or proposal a statement describing why the bidder or offeror is not required to be so authorized. A bidder required to be authorized to transact business in Virginia that fails to provide the required information shall not receive an award unless a waiver of this requirement and of any administrative policies and procedures established to implement Section 2.2-4311.2 of the Code of Virginia, as amended, is granted by the Owner.

If awarded the Contract, the bidder shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the Contract. Doing so shall be deemed to be a violation of Section 2.2-4311.2 and the bidder understands and agrees that the Owner may void the Contract if the bidder fails to comply with this provision.

5. **BID GUARANTEE:**

- (a) Any bid (including the Total Base Bid plus all Additive Bid Items) which exceeds one hundred thousand dollars (\$100,000) shall be accompanied by a Bid Bond payable to the Owner as obligee in an amount equal to five percent (5%) of the amount of the bid. A Bid Bond may be required for projects having bids of less than one hundred thousand dollars (\$100,000) if such requirement is stated in the Notice of Invitation for Bids. The Bid Bond must be issued by a surety company which is legally authorized by the Virginia State Corporation Commission to do fidelity and surety business in the Commonwealth of Virginia. **The bid bond shall identify the name and address of an attorney-in-fact who is appointed to act on behalf of the surety within the Commonwealth of Virginia. The attorney-in-fact shall affix to the bond a certified and current copy of the power of attorney.** Such Bid Bond shall guarantee that the bidder will not withdraw his bid during the period of sixty (60) days following the opening of bids; that if his bid is accepted, he will enter into a formal contract with the Owner in accordance with the Contract Between Owner and Contractor included as a part of the IFB Documents; that he will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond on the forms included in the IFB documents; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after he has received notice of acceptance of his bid, or other forfeiture under the Bid Bond, the bidder shall be liable to the Owner for the difference between the amount specified in said bid and such larger amount for which the Owner may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the

damage to the Owner on account of the default of the bidder in any particular hereof. See §2.2-4336 of the Code of Virginia.

- (b) See §2.2-4338 of the Code of Virginia for provisions allowing alternative forms of bid security in lieu of a Bid Bond.
- (c) The Bid Bonds or other bid security will be returned to all except the three lowest bidders after the formal opening of bids. The remaining Bid Bonds or bid security will be returned to the bidders after the Owner and the accepted bidder have executed the Contract and the Performance Bond and the Payment Bond have been approved by the Owner.
- (d) If the required Contract and bonds have not been executed within sixty (60) days after the date of the opening of the bids, then the bond or other bid security of any bidder will be returned upon his request, provided he has not been notified of the acceptance of his bid prior to the date of such request.

6. WITHDRAWAL OR MODIFICATION OF BIDS:

- (a) **WITHDRAWAL:** Bids may be withdrawn by written or telefaxed notice received from bidders prior to the deadline fixed for bid receipt. The bidder has sole responsibility to ensure that such notice is received by the Owner in the appropriate office designated in the Instructions to Bidders, and the Owner shall not be responsible for ensuring accurate or prompt delivery. A withdrawal must be signed by the person signing the sealed bid or by other individual(s) who is authorized to act on behalf of the bidder. Such authorization must be provided in writing at the time of withdrawal, and stated on the face of the withdrawal notice. Withdrawn bids may be resubmitted by the bidder up to the deadline fixed for bid receipt.
- (b) **MODIFICATION:** Bids may be modified only in the following manner. E-mail or telefaxed modifications are not acceptable. All modifications must be signed by the person signing the sealed bid or by an individual(s) who is authorized by him/her on the face of the bid. Written modifications may only be made on the bid form itself. Written modifications must be signed by the person making the modification. The modification must state specifically what is to be modified and by what amount or it must state the item to be modified and what the corrected amount should be. (e.g. “Deduct \$25,000 from Part A and from the Total Base Bid Amount”; or “Add \$23,456 to the Total Base Bid Amount”; or “Deduct \$15,650 from the Additive # 2 amount”. A modification to “Deduct \$25,000 from Part A” will only be applied to Part A and not to the Total Base Bid Amount). Unless otherwise specified by the Bidder in the modification, the modification will be applied to the TOTAL BASE BID AMOUNT shown on the Bid Form (e.g. a modification stating only “Deduct \$25,000” which is properly signed will be deducted from the Total Base Bid Amount shown on the Bid Form).

7. RECEIPT OF BIDS:

- (a) Bids will be received at or before the date and the hour and at the place stipulated in the Invitation for Bids as may be modified by subsequent Addenda.
- (b) It is the responsibility of the bidder to assure that his bid and any bid modifications are delivered to the place designated for receipt of bids by the date and hour (deadline) set for receipt of bids.

Therefore, it is the bidder's responsibility to take into account all factors which may impact on its bid deliverer/courier's ability to deliver the bid and to implement whatever actions are necessary to have the bid delivered to the proper bid receipt location prior to the bid receipt deadline. No bids or bid modifications submitted or offered after the date and hour designated for receipt of bids will be accepted or considered.

- (c) The Purchasing Agent is the Owner's representative designated to receive bids at the time and place noted in the IFB and to open the bids received at the appointed time.
- (d) The official time used for the receipt of responses is determined by reference to the clock designated by the Purchasing Agent. The Purchasing Agent shall determine when the Bid Receipt Deadline has arrived and shall announce that the Deadline has arrived and that no further bids or bid modifications will be accepted. All bids and bid modifications in the possession of the Purchasing Agent and his assistants at the time the announcement is completed are deemed to be timely, whether or not the bid envelope has been physically date/time stamped or otherwise marked by the time the Purchasing Agent makes the deadline announcement.

8. OPENING OF BIDS:

- (a) Bids will be opened at the time and place stated in the Invitation for Bids or as modified by subsequent Addenda, and their contents publicly announced. The Purchasing Agent shall decide when the specified time for bid opening has arrived. No responsibility will be attached to any officer or agent for the premature opening of a bid not properly addressed and identified.
- (b) The provisions of §2.2-4342 of the Code of Virginia shall be applicable to the inspections of bids received.

- 9. ERRORS IN BIDS:** A bidder may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn. The bidder shall give notice of a claim to withdraw a bid, in writing, and submit his original work papers, documents and materials used in the preparation of his bid, to the Purchasing Agent within two business days after the conclusion of the opening of bids. §2.2-4330(B)(1) of the Code of Virginia.

Failure of a bidder to give notice and submit his original work papers, documents and materials used in the preparation of his bid on or before the time, date and place required shall constitute a waiver by that bidder of his right to withdraw his bid due to a mistake.

No bid may be withdrawn under this section when the result would be the awarding of the Contract on another bid of the same bidder or of another bidder in which the ownership of the withdrawing bidder is more than five percent (5%).

No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the Contract is awarded

or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted. The person or firm to whom the Contract was awarded and the withdrawing bidder are jointly liable to the Owner in an amount equal to any compensation paid to or for the benefit of the withdrawing bidder without such approval.

If a bid is withdrawn under authority of this section, the lowest remaining bid shall be deemed to be the low bidder on the project.

10. REJECTION OF BIDS: The Owner reserves the right to cancel the Invitation for Bids, to reject any and all bids at its sole discretion when such rejection is in the interest of the Owner, or to reject the bid of any bidder who is determined to be not responsive or not responsible. See §2.2-4319, Code of Virginia.

11. DETERMINATION OF RESPONSIBILITY:

Each bidder shall be prepared, if so requested by the Owner, to present evidence of his experience, qualifications and financial ability to carry out the terms of the Contract.

Prior to award of the Contract, an evaluation will be made to determine if the low bidder has the capability, in all respects, to perform fully the contract requirements and the moral and business integrity and reliability which will assure good faith performance, and who has been prequalified, if required. Factors to be evaluated may include, but are not limited to:

- (a) sufficient financial ability to perform the contract as evidenced by the bidder's ability to obtain payment and performance bonds from an acceptable surety;
- (b) appropriate experience to perform the Work described in the bid documents;
- (c) any judgments entered against the bidder, or any officers, directors, partners or owners for breach of a contract for construction;
- (d) any substantial noncompliance with the terms and conditions of prior construction contracts with a public body without good cause where the substantial noncompliance is documented; or
- (e) a conviction of the bidder or any officer, director, partner, project manager, procurement manager, chief financial officer, or owner in the last five years of a crime relating to governmental or nongovernmental construction or contracting;
- (f) any current debarment of the contractor, any officer, director or owner, from bidding or contracting by any public body of any state, any state agency, or any agency of the federal government.

The Owner reserves the right to disqualify or refuse to accept the bid of any bidder who has been convicted, or entered a plea of guilty or nolo contendere, in any federal or state court to any charge involving any unlawful, corrupt or collusive practice involving a public contract whether federal, state, or local, or who has been determined in any judicial proceeding to have violated any antitrust, bid-rigging or collusive practice statute in connection with any public contract, or against whom such formal criminal prosecution or other judicial proceeding has been initiated.

A bidder who, despite being the apparent low bidder, is determined not to be a responsible bidder shall be notified in writing in conformance with the procedures in §2.2-4359 of the Code of Virginia.

12. AWARD OF CONTRACT:

- (a) **Basis for Contract Award:** The Contract, if awarded, will be awarded to the lowest responsive and responsible bidder, if any, provided his bid is reasonable and it is in the best interest of the Owner to accept it and subject to the Owner's right to reject any and all bids and to waive informality in the bids and in the bidding. The Bid Form may contain a multi-part Base Bid and may contain Additive Bid Items. Determination of the lowest responsive bidder, if any, will be based on the Total Base Bid amount entered on the Bid Form including any properly submitted bid modifications plus as many Additive Bid Items taken in sequence as the Owner in its discretion chooses to Award. Where the sum of the values entered in the multiple parts do not agree with the Total Base Bid amount, the Total Base Bid amount entered on the Bid Form, including any properly submitted bid modifications, shall take precedence. In the event that the Total Base Bid from the lowest responsible bidder exceeds available funds, the Owner may negotiate the Total Base Bid amount with the apparent low bidder to obtain a contract price within available funds, pursuant to §2.2-4318 of the Code of Virginia and Section 12(c) herein.
- (b) **Informalities:** The Owner reserves the right to waive any informality in the bids when such waiver is in the interest of the Owner.
- (c) **Negotiation With Lowest Responsible Bidder:** If award of a contract to the lowest responsive and responsible bidder is precluded because of limitations on available funds, under the provisions of §2.2-4318 of the Code of Virginia (the Public Procurement Act), the Owner reserves the right to negotiate the Total Base Bid amount with the lowest responsive, responsible bidder to obtain a contract price within the available funds. This may involve changes in either the features or scope of the work included in the Base Bid. Such negotiations with the apparent low bidder may include reducing the quantity, quality, or other cost saving mechanisms involving items in the Total Base Bid. The Owner shall notify the lowest responsive and responsible bidder that such a situation exists and the Owner and bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable contract can be negotiated, the changes to the Invitation for Bid documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the contract. If an acceptable contract cannot be negotiated, the Owner shall terminate negotiations and reject all bids.
- (d) **Notice of Intent to Award or Notice of Award:** The Notice of Award or the Notice of Intent to Award will be posted on the Albemarle County Purchasing Office web site with the Invitation for Bid procurement documents (www.albemarle.org/purchasing). Any bidder or offeror who desires to protest the award or decision to award a contract shall submit the protest in writing to the Albemarle County Purchasing Agent no later than ten days after the posting of the Notice of Award or Notice of Intent to Award, whichever comes first (§ 2.2-4360).

- 13. CONTRACT SECURITY:** For contracts of more than \$100,000, the Standard Performance Bond (Form AC-10) and the Standard Labor and Material Payment Bond (Form AC-10.1) shall be required, as specified in the Invitation for Bids documents. See the General Conditions and §2.2-4337 and §2.2-4338 of the Code of Virginia. The Owner reserves the right to require such bonds for contracts less than \$100,000. If the Owner so elects, the requirement shall be set forth in the Invitation for Bids. **The bonds shall identify the name and address of an attorney-in-fact who is appointed to act on behalf of the surety within the Commonwealth of Virginia. The attorney-in-fact shall affix to the bond a certified and current copy of the power of attorney.**

14. **CERTIFICATION:** The bidder, by his signature on the Bid Form, certifies that neither his organization nor any of its officers, directors, partners or owners is currently barred from bidding on contracts by the Commonwealth of Virginia, or any public body or agency of another state, or any agency of the federal government. See the statement “Disqualification of Contractors” in the Bid Form.
15. **ETHICS IN PUBLIC CONTRACTING:** The provisions, requirements and prohibitions as contained in Chapter 43, Article 6, §2.2-4367 et seq, Code of Virginia, pertaining to bidders, offerers, contractors, and subcontractors are applicable to this project.
16. **BUILDING PERMITS:** The Virginia Uniform Statewide Building Code shall apply to the Work and shall be administered by the local Building Official. The Building Permit will be obtained by the Contractor and paid for by the Owner. All other permits, local license fees, business fees, taxes, or similar assessments shall be obtained and paid for by the Contractor. See Section 25 of the General Conditions for utility connection fees and services.
17. **MINORITY UTILIZATION:** The County of Albemarle, Virginia, encourages the participation of minority businesses in public procurement activities. Towards that end, the Owner encourages firms to provide for the participation of minority owned businesses through partnerships, joint ventures, subcontracts, and other contractual opportunities.
18. **BID DOCUMENTS:** Bid Documents are the property of the Owner and are available electronically through the Albemarle County Purchasing Office web site at www.albemarle.org/purchasing. Bidders are responsible to check the Purchasing web site and download any Addenda issued for the bid. A deposit is not required for downloading of electronic documents through the web site. The bidder is responsible for the cost of printing any contract documents necessary for bidding. If awarded a contract, the Owner will provide the contractor with two sets of contract documents (i.e. full sized drawings and specifications) for use in the field and the contractor will be responsible for the cost of printing any additional contract documents that may be needed.
19. **GENERAL CONDITIONS:** The County of Albemarle Construction Contract General Conditions are incorporated in the bid documents. If the General Conditions are incorporated by reference, the bidder may obtain a copy of the current edition of the Construction Contract General Conditions at no cost by request to the County of Albemarle, Facilities & Environmental Services - Project Management Division, 401 McIntire Road, Charlottesville, Virginia 22902 (434-872-4501).
20. **PREBID CONFERENCE:** See the Invitation for Bids for requirements for a prebid conference and whether such conference is mandatory or optional.
21. **INSPECTION OF BID DOCUMENTS:** Copies of the Invitation for Bids documents including Plans and Specifications will, upon request, be made available for inspection at the Albemarle County Facilities & Environmental Services Department - Project Management Division, or the A/E’s office.
22. **DRUG-FREE WORKPLACE REQUIRED:** Bidders are reminded that §2.2-4312 of the Code of Virginia requires that during the performance of the contract resulting from this solicitation, the contractor agrees to (i) provide a drug-free workplace for the contractor’s employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is

prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this solicitation, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

- 23. CERTIFICATION OF CRIMES AGAINST CHILDREN:** Pursuant to Virginia Code §22.1-296.1(C), as a condition of awarding a contract for the provision of services that require the contractor or his employees to have direct contact with students on school property during regular school hours or during school-sponsored activities, the School Board requires the contractor to provide certification that all persons who will provide such services have not been convicted of a felony or any offense involving the sexual molestation or physical or sexual abuse or rape of a child. Any person making a materially false statement regarding any such offense shall be guilty of a Class 1 misdemeanor and, upon conviction, the fact of such conviction shall be grounds for the revocation of the contract to provide such services and, when relevant, the revocation of any license required to provide such services. This requirement does not apply to a contractor or his employees providing services to the School Board in an emergency or exceptional situation, such as when student health or safety is endangered or when repairs are needed on an urgent basis to ensure that school facilities are safe and habitable, when it is reasonably anticipated that the contractor or his employees will have no direct contact with students.



Bid Receipt and Bid Opening Procedures

March 15, 2022

IFB No. 2022-IFB-3031533 – Greer Elementary School Backup Generator Project

In light of the State of Emergency declared by the Commonwealth and the County of Albemarle, and in accordance with the Governor's [Executive Order Number Fifty-One](#), the following modifications to Albemarle County Purchasing Procedures shall be in effect for the duration of the emergency conditions:

1. Bids shall be prepared as usual and shall be delivered to the County Office Building at 401 McIntire Road, Charlottesville, VA 22902. Bids and proposals will be received in a secure manner and will be stored in such manner as to keep them in a secure status.
2. **A secure lock box will be available, at the exterior of the County Office Building, at the front Visitors Entrance**, and will be labeled **Vendor/Contractor Bids or Proposals Only**. Bids shall be placed in this box, **prior** to the established due date and time for each solicitation.
3. Bids from contractors will be received in the lockbox until **March 15, 2022, at 3:00 PM EST**. Any further bids received will be ruled as late bids and will be retained un-opened. Late bids will not be considered. If you have any difficulty utilizing the lockbox please call the Purchasing Office, at 434-296-5854.
4. Bid openings will be held virtually. At the appointed time as noted below, the bids will be virtually opened and read aloud by Purchasing personnel. Public attendance at the Bid Opening will be by virtual attendance through Microsoft Teams.
5. The bids shall be examined for conformance of all requirements of the solicitation including a signature, acknowledgement of addenda, and presence of a bid bond, when required. At the conclusion of the reading of the bids, Purchasing staff will complete the due diligence to examine bids for determination of complete responsiveness and vendor responsibility and additional information, including the bid tabulation, will be provided as it becomes available.
6. On **March 15, 2022, at 3:30 PM EST**, the Virtual Bid Opening may be attended through a Microsoft Teams meeting at this link:

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Or call in (audio only)

+1 540-613-8851,,644170352# United States, Roanoke

Phone Conference ID: 644 170 352#

Find a local number | Reset PIN

PREBID QUESTION FORM

(Use separate form for each question submitted.)

DATE: _____

**PROJECT: Greer Elementary School Backup Generator Installatiion Project
IFB# 2022-IFB-30315-33**

The following question concerns Drawing Sheet (number) _____:

The following question concerns Specifications Section (number) _____, page _____, paragraph _____:

All responses to questions will be made by Addendum.

Questions submitted by: _____
Name Organization

Email Form To: County of Albemarle Purchasing – dshifflett3@albemarle.org
County of Albemarle Project Manager – ncraft@albemarle.org
2RW Consultants, Inc – nealc@2rw.com
Design Services Assistant – jillh@2rw.com

Or

Mail/Fax Form to: County of Albemarle
Purchasing Department
401 McIntire Road
Charlottesville, Virginia 22902-4596
FAX: (434) 972-4006

2rw Consultants, Inc., Neal Cramer
100 10th St. Suite 202
Charlottesville, VA, 22902

BID FORM

DATE: _____

PROJECT TITLE: **Greer Elementary School Backup Generator Installation Project**
IFB No. 2022-IFB-30315-33

TO: County of Albemarle, Virginia, and/or
The School Board of Albemarle County, Virginia
Office of Procurement – Room 248
Albemarle County Office Building
401 McIntire Road
Charlottesville, VA 22902

In compliance with and subject to your Invitation for Bids and the documents therein specified, all of which are incorporated herein by reference, the undersigned bidder proposes to furnish all labor, equipment, and materials and perform all work necessary for construction of this project, in accordance with the Plans and Specifications dated February 4, 2022, and the Addenda noted below, as prepared by 2RW Consultants, Inc. for the consideration of the following amount:

BASE BID (including the following parts but excluding work in Additive Bid Items):

PART A.

Lump sum price for complete and in accordance with the Plans and Specifications:

PART A = _____ Dollars (\$ _____)
(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.)

TOTAL BASE BID AMOUNT IS:

_____ Dollars (\$ _____)
(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.)

Contract award will be based on the **TOTAL BASE BID AMOUNT shown above** (including any properly submitted bid modifications).

The undersigned understands that time is of the essence and agrees that the date for Substantial Completion of the entire project shall be on or before August 8th, 2022 based on a Notice authorizing Work to proceed on or before May 13th, 2022 , with construction to begin onsite on June 14th, 2022 and Final Completion shall be achieved within 45 consecutive calendar days after the date of Substantial Completion as determined by the A/E.

* * * * *

Acknowledgment is made of receipt of the following Addenda:

If notice of acceptance of this bid is given to the undersigned within 60 days after the date of opening of bids, or any time thereafter before this bid is withdrawn, the undersigned will execute and deliver a contract in the prescribed form (County of Albemarle Contract Between Owner and Contractor, Form AC-9) within 10 days after the contract has been presented to him for signature. The required payment and performance bonds, on the forms prescribed, shall be delivered to the owner along with the signed Contract.

Immigration Reform and Control Act of 1986: The undersigned certifies that it does not and will not during the performance of the Contract for this project violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

DISQUALIFICATION OF CONTRACTORS: By signing this bid or proposal, the undersigned certifies that this Bidder or any officer, director, partner or owner is not currently barred from bidding on contracts by any Agency of the Commonwealth of Virginia, or any public body or agency of another state, or any agency of the federal government, nor is this Bidder a subsidiary or affiliate of any firm/corporation that is currently barred from bidding on contracts by any of the same. We have attached an explanation of any previous disbarment(s) and copies of notice(s) of reinstatement(s).

CERTIFICATION OF NO COLLUSION: The undersigned does hereby certify in connection with the procurement and bid to which this Certification of No Collusion is incorporated that:

This bid is not the result of, or affected by, any act of collusion with another person engaged in the same line of business or commerce; nor is this bid the result of, or affected by, any act of fraud punishable under Article 1.1 of Chapter 12 of Title 18.2 of the Code of Virginia, 1950, as amended (18.2-498.1 et seq.).

The undersigned declares that they are fully authorized to sign the proposal on behalf of the firm listed and to all conditions and provisions thereof. The firm name given below is the true and complete name of the bidder and the bidder is legally qualified and licensed by the Commonwealth of Virginia, Department of Commerce, State Board for Contractors, to perform all Work included in the scope of the Contract.

Virginia License No. _____

Bidder _____
(Name of Firm)

Contractor Class _____

By _____
(Signature)

Valid Until _____

(Typed Name)

FEIN/SSN: _____

Title _____

If Partnership (List Partner's Names)

If Corporation, affix Corporate Seal & list
State of Incorporation

State: _____
(Affix Seal)

Business Address:

Telephone No.: _____

Fax No.: _____

Email: _____

STATE CORPORATION COMMISSION & REGISTERED AGENT FORM

Virginia State Corporation Commission (SCC) registration information.

Code of Virginia § 13.1-757. A foreign corporation may not transact business in the Commonwealth until it obtains a certificate of authority from the Commission.

The bidder:

<input type="checkbox"/>	is a corporation or other business entity with the following Virginia SCC identification number: _____ -OR-
<input type="checkbox"/>	is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust -OR-
<input type="checkbox"/>	is not required to obtain a certificate of authority from the Virginia SCC, pursuant to <i>Virginia Code</i> § 13.1-757(B) because its sole contact(s) with the Commonwealth consist(s) of: <ol style="list-style-type: none"> 1. <input type="checkbox"/> Maintaining, defending, or settling any proceeding; 2. <input type="checkbox"/> Holding meetings of the board of directors or shareholders or carrying on other activities concerning internal corporate affairs; 3. <input type="checkbox"/> Maintaining bank accounts; 4. <input type="checkbox"/> Maintaining offices or agencies for the transfer, exchange, and registration of the corporation's own securities or maintaining trustees or depositories with respect to those securities; 5. <input type="checkbox"/> Selling through independent contractors; 6. <input type="checkbox"/> Soliciting or obtaining orders, whether by mail or through employees or agents or otherwise, if the orders require acceptance outside this Commonwealth before they become contracts; 7. <input type="checkbox"/> Creating or acquiring indebtedness, deeds of trust, and security interests in real or personal property; 8. <input type="checkbox"/> Securing or collecting debts or enforcing deeds of trust and security interests in property securing the debts; 9. <input type="checkbox"/> Owning, without more, real or personal property; 10. <input type="checkbox"/> Conducting an isolated transaction that is completed within 30 days and that is not one in the course of repeated transactions of a like nature; 11. <input type="checkbox"/> For a period of less than 90 consecutive days, producing, directing, filming, crewing or acting in motion picture feature films, television series or commercials, or promotional films which are sent outside of the Commonwealth for processing, editing, marketing and distribution. The term "transacting business" as used in this subsection shall have no effect on personal jurisdiction under § 8.01-328.1; or 12. <input type="checkbox"/> Serving, without more, as a general partner of, or as a partner in a partnership which is a general partner of, a domestic or foreign limited partnership that does not otherwise transact business in the Commonwealth. 13. <input type="checkbox"/> Transacting business in interstate commerce.
<input type="checkbox"/>	is an out-of-state business entity that is including with this bid <u>an opinion of legal counsel</u> which accurately and completely discloses the undersigned bidder's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia. Attach opinion of legal counsel to this form.

Registered Agent Information

Please specify the Registered Agent who will accept service of process on your behalf.

Agent Name: _____

Physical Address (no Post Office Boxes):

I certify the accuracy of this information.

Signed: _____ Title: _____ Date: _____

OFFEROR DATA SHEET

Note: The following information is required as part of your response to this solicitation. Failure to complete and provide this sheet may result in finding your bid nonresponsive.

1. Qualification: The vendor must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.

2. Vendor's Primary Contact:

Name: _____ Phone: _____

3. Years in Business: Indicate the length of time you have been in business providing this type of good or service:

_____ Years _____ Months

4. Vendor Information:

FIN or FEI Number: _____ If Company, Corporation, or Partnership

5. Indicate below a listing of at least four (4) recent projects, either educational or governmental, that your company has successfully completed with similar scope, cost and complexity, include the date of services and the name, address, and email address, and telephone number of the point of contact.

A.	Company: _____	Contact: _____
	Phone: _____	Email: _____
	Dates of Service: _____	\$ Value: _____

B.	Company: _____	Contact: _____
	Phone: _____	Email: _____
	Dates of Service: _____	\$ Value: _____

C.	Company: _____	Contact: _____
	Phone: _____	Email: _____
	Dates of Service: _____	\$ Value: _____

D.	Company: _____	Contact: _____
	Phone: _____	Email: _____
	Dates of Service: _____	\$ Value: _____

I certify the accuracy of this information.

Signed: _____ Title: _____ Date: _____

**CERTIFICATION OF CRIMES AGAINST CHILDREN
AND ACTS OF MORAL TURPITUDE**

Contractor acknowledges that the implementation of this contract requires Contractor, Contractor's employees and/or subcontractors to have direct contact with Albemarle County Public Schools' students. Therefore, Contractor hereby certifies that neither Contractor nor, to the best of Contractor's knowledge, its employees and/or subcontractors have been convicted of a felony or any offense involving the sexual molestation or physical or sexual abuse or rape of a child.

Contractor further certifies and shall indicate below whether Contractor and, to the best of Contractor's knowledge, its employees and/or its subcontractors, who will have direct contact with Albemarle County Public School students, have been convicted of a crime of moral turpitude. Crimes of "moral turpitude" are those crimes involving lying, cheating or stealing.

For the purposes of this certification, "direct contact with students" means being in the presence of students during regular school hours or during school sponsored activities.

Contractor understands that, pursuant to Code of Virginia §22.1-296.1(C), making a materially false statement regarding offenses which are required to be included in the certification referenced above is a Class 1 misdemeanor and, upon conviction, the fact of such conviction shall be grounds for the revocation of the contract to provide such services and, when relevant, the revocation of any license required to provide such services. Albemarle County Public Schools shall not be liable for materially false statements regarding the certifications required under this Contract.

.....

Have you or, to the best of your knowledge, any of your employees and/or subcontractors who will have direct contact with students been convicted of a crime of moral turpitude?

- NO
- YES (please explain)

Contractor

Date

By: _____

Title: _____

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COUNTY OF ALBEMARLE



CONSTRUCTION CONTRACT GENERAL CONDITIONS

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1. DEFINITIONS

Whenever used in these Construction Contract General Conditions (“General Conditions”) or in the Contract Documents, the following terms have the meanings indicated, which are applicable to both the singular and plural and the male and female gender thereof:

Architect, Engineer, Architect/Engineer or A/E: The term used to designate the Architect and/or the Engineer that contracts with the Owner to provide the Architectural and Engineering services for the Project. The A/E is a separate contractor and not an agent of the Owner. The term includes any associates or consultants employed by the A/E to assist in providing the A/E services.

Beneficial Occupancy: The condition after Substantial Completion but prior to Final Completion of the Project at which time the Project, or portion thereof, is sufficiently complete and systems operational such that the Owner could, after obtaining necessary approvals and certificates, occupy and utilize the space for its intended use. Guarantees and warranties applicable to that portion of the Work begin on the date the Owner accepts the Project, or a portion thereof, for such Beneficial Occupancy, unless otherwise specified in the Supplemental General Conditions or by separate agreement.

Building Permit: See “Permit” below.

Change Order: A document (Form AC-11) issued on or after the effective date of the Contract Between Owner and Contractor (Form AC-9) which is agreed to by the Contractor and approved by the Owner, and which authorizes an addition, deletion or revision in the Work, including any adjustment in the Contract Price and/or the Contract Completion Date. A Change Order once signed by all parties, with the exception of a Unilateral Change Order that is only signed by the Owner, is incorporated into and becomes a part of the Contract.

Claim: A demand or assertion by one of the parties seeking, as a matter of right, 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 “claim” also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice. The responsibility to substantiate claims shall rest with the party making the claim.

Code of Virginia: 1950 Code of Virginia as amended. Sections of the Code referred to herein are noted by §xx-xx.

Construction: The term used to include new construction, reconstruction, renovation, restoration, major repair, demolition and all similar work upon buildings and ancillary facilities, including any draining, dredging, excavation, grading or similar work upon real property.

Contract: The Contract Between Owner and Contractor, Form AC-9, hereinafter referred to as the Contract.

Contract Completion Date: The date by which the Work must be substantially complete. The Contract Completion Date is customarily established in the Notice To Proceed, based on the Time for Completion. In some instances, however, the Contract contains a mandatory Contract Completion Date, which shall be stated in the Invitation for Bid or Request for Proposal, as applicable.

Contract Documents: The Contract Between Owner and Contractor (Form AC-9) signed by the Owner and the Contractor and any documents expressly incorporated therein. Such incorporated documents customarily include the bid submitted by the Contractor, these General Conditions, any Supplemental General Conditions, any Special Conditions, the plans and the specifications, and all modifications, including addenda and subsequent Change Orders.

Contract Price: The total compensation payable to the Contractor for performing the Work, subject to modification by Change Order.

Contractor: The person with whom the Owner has entered into a contractual agreement to do the Work.

Date of Commencement: The date as indicated in the written Notice to Proceed or a date mutually agreed to between the Owner and Contractor in writing.

Day(s): Calendar day(s) unless otherwise noted.

Defective: An adjective which, when modifying the word Work, refers to Work that is unsatisfactory, faulty, deficient, does not conform to the Contract Documents or does not meet the requirements of inspections, standards, tests or approvals required by the Contract Documents, or Work that has been damaged prior to the A/E's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion or Beneficial Occupancy).

Drawing: A page or sheet of the Plans which presents a graphic representation, usually drawn to scale, showing the technical information, design, location, and dimensions of various elements of the Work. The graphic representations include, but are not limited to, plan views, elevations, transverse and longitudinal sections, large and small scale sections and details, isometrics, diagrams, schedules, tables and/or pictures.

Emergency: Any unforeseen situation, combination of circumstances, or a resulting state that poses imminent danger to health, life or property.

Field Order: A written order issued by the A/E or Owner which clarifies or explains the plans or specifications, or any portion or detail thereof, without changing the design, the Contract Price, the Time for Completion or the Contract Completion Date.

Final Completion Date: The date of the Owner's acceptance of the Work from the Contractor upon confirmation from the Architect/Engineer and the Contractor that the Work is totally complete in accordance with Section 43(b).

Final Payment: The final payment that the Contractor receives pursuant to the applicable provisions of Section 36, except in the event no final payment is made due to termination of the Contract under either Sections 40 or 41. In the event of a termination for cause under Section 40, the Final Payment shall be when the termination became effective. In the event of a termination for convenience under Section 41, the Final Payment shall be either the payment of compensation for termination that the Contractor receives according to the provisions of Subsection 41, or the Owner's determination that no compensation for termination is due the Contractor under Subsection 41, as the case may be.

Float: The excess time included in a construction schedule to accommodate such items as inclement weather and associated delays, equipment failures, and other such unscheduled events. It is the

contingency time associated with a path or chain of activities and represents the amount of time by which the early finish date of an activity may be delayed without impacting the critical path and delaying the overall completion of the Project. Any difference in time between the Contractor's approved early completion date and the Contract Completion Date shall be considered a part of the Project float.

Float, Free: The time (in days) by which an activity may be delayed or lengthened without impacting upon the start day of any activity following in the chain.

Float, Total: The difference (in days) between the maximum time available within which to perform an activity and the duration of an activity. It represents the time by which an activity may be delayed or lengthened without impacting the Time for Completion or the Contract Completion Date.

Notice: All written notices, including demands, instructions, claims, approvals and disapprovals, required or authorized under the Contract Documents. Any written notice by either party to the Contract shall be sufficiently given by any one or combination of the following, whichever shall first occur: (1) delivered by hand to the last known business address of the person to whom the notice is due; (2) delivered by hand to the person's authorized agent, representative or officer wherever they may be found; or (3) enclosed in a postage prepaid envelope addressed to such last known business address and delivered to a United States Postal Service official or mailbox. Notice is effective upon such delivery. All notices to the Owner should be directed to the Project Manager.

Notices transmitted by Facsimile (Fax) or Email are acceptable for the Project. If faxed, Notices shall be transmitted to the Fax number listed in the Contract and shall have a designated space for the Fax Notice recipient to acknowledge his receipt by authorized signature and date. The Fax Notice with authorized signature acknowledging receipt shall be Faxed back to the sender. If emailed, Notices shall be transmitted to the email address listed in the Contract. The Email Notice recipient shall acknowledge receipt by emailing back to the sender and responding to the Emailed Notice. Notice shall be effective upon the date of acknowledgment of the Faxed or Emailed Notice or the date of delivery, whichever occurs first.

Notice to Proceed: A written notice given by the Owner to the Contractor (with a copy to A/E) fixing the date on which the Contract time will commence for the Contractor to begin the prosecution of the Work in accordance with the requirements of the Contract Documents. The Notice to Proceed will customarily identify a Contract Completion Date.

Owner: County of Albemarle, Virginia and/or The County School Board of Albemarle County, Virginia.

Permit: The term "permit" as used herein shall mean any and all permits required to comply with local, state, and federal codes or laws (including but not limited to building permit, erosion and sediment control permit, and any other permit required by state, federal, and local jurisdictions).

Person: This term includes any individual, corporation, partnership, association, company, business, trust, joint venture, or other legal entity.

Plans: The term used to describe the group or set of project-specific drawings and/or Architect/Engineer sketches which are included in the Contract Documents.

Project: The term used instead of the specific or proper assigned title of the entire undertaking which includes, but is not limited to, the “Work” described by the Contract Documents.

Project Inspector: One or more persons and/or firms employed by the Owner to inspect the Work for the Owner and/or to document and maintain records of activities at the Site to the extent required by the Owner. The scope of the Project Inspector’s authority with respect to the Contractor is limited to that indicated in Section 16(e) and (f).

Project Manager: The Project Manager as used herein shall be the Owner’s designated representative on the Project. The Project Manager shall be the person through whom the Owner generally conveys written decisions and notices. All notices due the Owner and all information required to be conveyed to the Owner shall be conveyed to the Project Manager. The Owner may change the Project Manager from time to time and may, in the event that the Project Manager is absent, disabled or otherwise temporarily unable to fulfill his duties, appoint an interim Project Manager.

Provide: Shall mean furnish and install ready for its intended use.

Schedule of Values: The schedule prepared by the Contractor and acceptable to the Owner which indicates the value of that portion of the Contract Price to be paid for each trade or major component of the Work.

Site: Shall mean the location at which the Work is performed or is to be performed.

Special Conditions: Provisions of a contract that are specific to the project under consideration and do not fall under General Conditions or Supplemental General Conditions.

Specifications: That part of the Contract Documents containing the written administrative requirements and the technical descriptions of materials, equipment, construction systems, standards, and workmanship which describe the proposed Work in sufficient detail and provide sufficient information for the Code Official to determine code compliance and for the Contractor to perform the Work. (The General Conditions, any Supplemental General Conditions, Special Conditions, various bidding information and instructions, and blank copies of various forms to be used during the execution of the Work are usually bound with the Specifications.)

Subcontractor: A person having a direct contract with Contractor or with any other Subcontractor for the performance of the Work. Subcontractor includes any person who provides on-site labor but does not include any person who only furnishes or supplies materials for the Project.

Submittals: All shop, fabrication, setting and installation drawings, diagrams, illustrations, schedules, samples, and other data required by the Contract Documents which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the Contractor to illustrate material or equipment conformance of some portion of the Work with the requirements of the Contract Documents.

Substantial Completion: The condition when the Owner agrees that the Work, or a specific portion thereof, is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by the Owner for the purposes for which it was intended. The Owner at its sole discretion may, after

obtaining the necessary approvals and certificates, take Beneficial Occupancy at this time or choose to wait to occupy until after Final Completion is achieved.

Supplemental General Conditions: That part of the Contract Documents which amends or supplements the General Conditions.

Supplier: A manufacturer, fabricator, distributor, materialman or vendor who provides material for the Project but does not provide on-site labor.

Time for Completion: The number of consecutive calendar days following the issuance of the Notice to Proceed which the Contractor has to substantially complete all Work required by the Contract. When the Notice to Proceed is issued, it states a Contract Completion Date, which has been set by the Owner based on the Time for Completion.

Underground Facilities: All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which are or have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unilateral Change Order: A Change Order from the Owner directing the Contractor to proceed with work within the scope of the contract which may be undefined or for which there is no agreement on the cost or time associated with the work.

Work: The services performed under this Contract including, but not limited to, furnishing labor, and furnishing and incorporating materials and equipment into the construction. The Work also includes the entire completed construction, or the various separately identifiable parts thereof, required to be provided under the Contract Documents or which may reasonably be expected to be provided as part of a complete, code compliant and functioning system for those systems depicted in the plans and specifications.

2. CONTRACT DOCUMENTS

- (a) The Contract Between Owner and Contractor (AC-9), the Standard Performance Bond (AC-10), the Standard Labor and Material Payment Bond (AC-10.1), the Schedule of Values and Certificate for Payment (AC-12), the Affidavit of Payments of Claims (AC-13), the Contractor's Certificate of Substantial Completion (AC-13.2a), and the Contractor's Certificate of Completion (AC-13.2) issued by the County of Albemarle are forms incorporated in these General Conditions by reference and are made a part hereof to the same extent as though fully set forth herein. They must be used by the Contractor for their respective purposes.
- (b) All time limits stated in the Contract Documents, including but not limited to the Time for Completion of the Work, are of the essence of the Contract.
- (c) The Contract Between Owner and Contractor shall be signed by the Owner and the Contractor in as many original counterparts as may be mutually agreed upon, each of which shall be considered an original.

- (d) Anything called for by one of the Contract Documents and not called for by the others shall be of like effect as if required or called for by all, except that a provision clearly designed to negate or alter a provision contained in one or more of the other Contract Documents shall have the intended effect. In the event of conflicts among the Contract Documents, the Contract Documents shall take precedence in the following order: the Contract Between Owner and Contractor; the Special Conditions; the Supplemental General Conditions; the General Conditions; the specifications with attachments; and the plans.
- (e) If any provision of this Contract shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision.
- (f) All correspondence, invoices, memoranda, submittals and other documents related to this Project whether generated by the Owner, the A/E, the Contractor or others should be identified at the beginning of the document with the Project Title shown in the Contract. Additional identification such as a job number, purchase order number or such may also be shown at the Owner's option.

3. LAWS, REGULATIONS AND PERMITS

- (a) The Contractor shall comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work and shall give all notices required thereby. The Contractor shall assure that all Subcontractors and tradesmen who perform Work on the project are properly licensed by the Department of Professional and Occupational Regulation as required by Title 54.1, Chapter 11, Articles 1 and 3, Code of Virginia, and by applicable regulations.
- (b) This Contract and all other contracts and subcontracts are subject to the provisions of Articles 3 and 5, Chapter 4, Title 40.1, Code of Virginia, relating to labor unions and the "right to work." The Contractor and its Subcontractors, whether residents or nonresidents of the Commonwealth, who perform any Work related to the Project shall comply with all of the said provisions.
- (c) IMMIGRATION REFORM AND CONTROL ACT OF 1986: By signing this Contract, the Contractor certifies that it does not and will not during the performance of this Contract violate the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.
- (d) The provisions of all rules and regulations governing safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia and as issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia shall apply to all Work under this Contract. Inspectors from the Department of Labor and Industry shall be granted access to the Work for inspection without first obtaining a search or administrative warrant.
- (e) Building Permit: The Virginia Uniform Statewide Building Code applies to the Work and is administered by the local Building Official. The Building Permit will be obtained by the Contractor and paid for by the Owner. All other permits, local license fees, business fees, taxes, or similar assessments shall be obtained and paid for by the Contractor. See Section 25 for utility connection fees and services.

- (f) The Contractor shall include in each of its subcontracts a provision requiring each Subcontractor to include or otherwise be subject to the same payment and interest requirements in Subsections (a), (b), and (c) of Section 37 of these General Conditions with respect to each lower-tier Subcontractor and Supplier.
- (g) The Contractor, if not licensed as an asbestos abatement contractor in accordance with §54.1-514, Code of Virginia, shall have all asbestos-related Work performed by subcontractors who are duly licensed as asbestos contractors for the Work required.
- (h) Lead-Based Paint Activities: If the Contract Documents indicate that lead-based paint is present on existing materials, components, or surfaces, the Contractor shall conform to the following:
 - (1) The requirements set forth in 59 Federal Register 45,872 (September 2, 1994) Proposed Rule - Lead; Requirements for Lead-based Paint Activities (Proposed Rules) in selecting and performing the means, methods and procedures for performing the Work. This includes, but is not limited to, training of personnel, lead abatement, encapsulation of lead containing materials, removal and handling of lead containing materials, and methods of disposal. When the Final Rule, to be codified at 40 CFR 745, supersedes the Proposed Rule, the Contractor shall be responsible for conforming to the Final Rule, as of the effective date set forth therein.
 - (2) The requirements for employee protection contained in 29 CFR Part 1926, Subpart D, and the requirements for record-keeping contained in 29 CFR Part 1910.
 - (3) The Virginia Department of Labor and Industry's (DLI) Emergency Regulation published in the May 27, 1996 Virginia Register, requiring, among other things, that a permit be issued to the lead abatement contractor, or any subsequent regulation issued by DLI.
- (i) If the Contractor violates laws or regulations that govern the Project, the Contractor shall take prompt action to correct or abate such violation and shall indemnify and hold the Owner harmless against any fines and/or penalties that result from such violation. To the extent that such violation is the result of negligence or other actionable conduct of the Contractor, the Contractor shall indemnify and hold the Owner harmless against any third party claims, suits, awards, actions, causes of action or judgments, including but not limited to attorney's fees and costs incurred thereunder, that result from such violation.
- (j) Land Disturbance Activities: If the Work includes any land disturbing activities, the Contractor shall be responsible for obtaining an Albemarle County Land Disturbance Permit. The Contractor shall have an individual certified by the Department of Conservation and Recreation (DCR) as a Responsible Land Disturber (RLD) on the project site at all times during the construction project where land is being disturbed in accordance with §10.1-563, Code of Virginia.

All construction activities involving land disturbances equal to or exceeding ten thousand (10,000) square feet must be covered by a Virginia Stormwater Management Program (VSMP) permit approved and issued by the County in accordance with the County of Albemarle's Water Protection Ordinance. The Owner is responsible for securing permit coverage for all applicable land disturbing activities performed, including within any easements that directly relate to the construction site activity. The Contractor shall sign a certification statement to comply with all conditions of the

permit, shall accept assignment as the responsible party prior to issuance of the Land Disturbance Permit, and shall sign all Responsible Land Disturber (RLD) forms.

The Contractor shall be responsible for securing permit coverage for support facilities that are not located within the project limits of disturbance. The Contractor shall be responsible for all costs to obtain permit coverage for all support facilities (both on-site and off-site) not included in the construction plans or contract documents for the project. The Owner will not be responsible for any inconvenience, delay, or loss experienced by the Contractor as a result of his failure to gain access to any support facility areas at the time contemplated.

- (k) Environmental Permitting: The Contractor shall sign a certification to comply with all conditions of any environmental permits required for the project (e.g. wetland or stream mitigation permit, floodplain development permit, etc.). The Contractor shall adhere to any time-of-year restriction conditions as required by state and federal permitting agencies. No in-stream work shall be permitted during in-stream time-of-year restrictions.
- (l) Virginia Department of Transportation (VDOT) Land Use Permit: The Contractor shall be responsible to obtain a VDOT Land Use Permit for projects requiring such permit. The Contractor shall be responsible for all costs associated with obtaining such permit.
- (m) The Contractor is responsible for ensuring that all permits required to perform the work are obtained and that all conditions of those permits are met throughout the duration of the project.

4. NONDISCRIMINATION

- (a) §2.2-4311 of the Code of Virginia shall be applicable. It provides as follows:

“1. During the performance of this Contract the Contractor agrees as follows:

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
- (b) The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
- (c) Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

2. The Contractor will include the provisions of the foregoing paragraphs (a), (b) and c) in every subcontract or purchase order of over ten thousand dollars (\$10,000), so that the provisions will be binding upon each Subcontractor or vendor.”
- (b) Where applicable, the Virginians with Disabilities Act and the Federal Americans with Disabilities Act shall apply to the Contractor and all Subcontractors.

5. PROHIBITION OF ALCOHOL AND OTHER DRUGS

- (a) §2.2-4312 of the Code of Virginia shall be applicable. It provides as follows:

“During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor’s employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor’s workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor. For the purposes of this section, “drug-free workplace” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.”

- (b) The Contractor shall also establish, maintain and enforce policies which prohibit the following acts by all Contractor, Subcontractor and Supplier personnel at the Site:
 1. the manufacture, distribution, dispensation, possession, or use of alcohol, marijuana or other drugs, except possession and medically prescribed use of prescription drugs; and
 2. the impairment of judgment or physical abilities due to the use of alcohol, marijuana or other drugs, including impairment from prescription drugs.

6. TIME FOR COMPLETION

- (a) The Time for Completion shall be designated by the Owner on the Invitation for Bids, Request for Proposals or other prebid/proposal documents. In some instances, the Time for Completion may be stated on the Invitation for Bids, Request for Proposals or other prebid/pre-proposal document in the form of a Contract Completion Date. The Work must be substantially completed by the Time for Completion or the Contract Completion Date. Unless otherwise specified, the Contractor shall achieve Final Completion within thirty (30) days after the date of Substantial Completion.
- (b) The Time for Completion shall be stated in the Contract Between Owner and Contractor and shall become a binding part of the Contract upon which the Owner may rely in planning the use of the

facilities to be constructed and for all other purposes. If the Contractor fails to substantially complete the Work within the Time for Completion or Contract Completion Date, as set forth in the Contract, he shall be subject to payment of actual damages incurred by the Owner or liquidated damages, if provided for in the Contract.

- (c) The Contractor, in submitting his bid, acknowledges that he has taken into consideration normal weather conditions. The listing below defines the monthly anticipated days of adverse weather for each month and is based upon NOAA climatological data for Charlottesville, Virginia. Adverse weather days shall be days of actual precipitation of 0.10 inch or greater.

<u>Jan*</u>	<u>Feb*</u>	<u>Mar*</u>	<u>Apr</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec*</u>
6	6	7	6	8	6	8	8	6	5	5	6

* In addition to the anticipated days of adverse weather noted above, the Contractor must include one day of adverse weather impact (snow, ice, mud) for each day of actual adverse weather during the months of January, February, March, and December.

The anticipated days provided above will constitute the baseline for adverse weather time evaluations.

For projects not involving buildings, throughout the portion of the contract from the date of Notice to Proceed until the project is substantially complete, actual adverse weather days are to be recorded by the Contractor and verified by the A/E each month.

For projects involving buildings, throughout the portion of the contract from the date of Notice to Proceed until the building is “dried in”, actual adverse weather days are to be recorded by the Contractor and verified by the Architect each month. The building shall be considered “dried in” when the exterior block walls or stud and sheathing walls are in place, and a temporary (or permanent) roof is in place. Upon determination by the Owner and Architect that the building is in fact dried in, requests for additional time due to weather delays will not be accepted for any work within the building footprint.

The total anticipated adverse weather days for the project shall be the sum of all the monthly days for each month from the date of Notice to Proceed until the project is substantially complete, or until the date the building is to be “dried in”, according to the Contractor’s schedule.

If the total number of actual adverse weather days plus adverse weather impact days exceeds the anticipated adverse weather days determined above, the excess days may be used as a basis to determine whether a Contractor is entitled to a time extension. The adverse weather must have prevented work for fifty percent (50%) or more of the Contractor’s work day and delayed work critical to the timely completion of the project.

The Contractor’s schedule must indicate the critical (path) work and must reflect the above anticipated adverse weather days for all weather dependent activities.

- (1) The extension requested must be supported by a delay in completion of the entire Project shown on the critical path of the accepted CPM Schedule or the approved bar graph schedule

required for the Project. Extensions will be granted only for delays in completion of the Project, not for that portion of any delay which consumes only “float” time.

- (2) A request for extension of time based on abnormal weather must be made in writing within ten (10) calendar days of the completion of the calendar month during which abnormal weather is claimed at the Site.
- (3) All of the evidence and data supporting the request (including both historical data and the recordings at the Site during the time of delay) must be furnished to the Owner before any consideration will be given to the request. That supporting data shall be submitted by the end of the calendar month following the month for which the request is made. Time extensions for adverse weather related days granted by the Owner will extend the Contract Completion Date but will not include additional compensation to the Contractor. Weather-related time extension(s) shall not be compensable.
- (d) The Contractor represents and agrees that he has taken into account in his bid the requirements of the bid documents, local conditions, availability of materials, equipment, and labor, and any other factors which may affect the performance of the Work. The Contractor agrees and warrants that he will achieve Substantial Completion of the Work to allow the Owner to have Beneficial Occupancy not later than the Time for Completion or Contract Completion Date. The Contractor agrees and warrants that he will achieve Final Completion of the Work (the entire completion of all Work, including “punch list” items), not later than the number of days as specified in the Contract Documents after achieving Substantial Completion.

7. CONDITIONS AT SITE

- (a) The Contractor and its Subcontractors shall have visited the Site prior to bidding or submitting a bid or proposal and are totally responsible for having ascertained pertinent local conditions such as location, accessibility and general character of the Site, and the character and extent of existing conditions, improvements and work within or adjacent to the Site. It is understood that the Contractor accepts conditions at the site as of the date of its bid or proposal and no allowances will be made after award for any future error or negligence by Contractor or Subcontractors. Claims, which result from the Contractor’s failure to do so, will be deemed waived.
- (b) If, in the performance of the Contract, hidden physical conditions of a building being modified are exposed revealing unusual or materially different conditions from those ordinarily encountered or inherent in work of this nature, or if subsurface or latent conditions at the Site are found which are materially different from those frequently present in the locality or from those indicated in the Contract Documents, the Contractor must report such conditions to the Owner and to the Architect/Engineer before the conditions are disturbed. Upon such notice, or upon his own observation of such conditions, the Architect/Engineer shall promptly propose such changes in the Contract Documents as he finds necessary to conform to the different conditions. Any change in the cost of the Work or additional time needed for completion must be requested pursuant to Sections 38 and/or 42 of these General Conditions.

- (c) If the Contractor, during the course of the Work, observes the existence of any material which he knows, should know, or has reason to believe is hazardous to human health, the Contractor shall promptly notify the Owner. The Owner will provide the Contractor with instructions regarding the disposition of the material. The Contractor shall not perform any Work involving the material or any Work causing the material to be less accessible prior to receipt of special instructions from the Owner.

8. CONTRACT SECURITY

- (a) For Contracts with a value exceeding one hundred thousand dollars (\$100,000), the Contractor shall deliver to the Owner or its designated representative, a Standard Performance Bond (Form AC-10) and a Standard Labor and Material Payment Bond (Form AC-10.1), each fully executed by the Contractor and one or more surety companies legally licensed to do business in Virginia and each in an amount equal to one hundred percent (100%) of the accepted bid. The bonds shall identify the name and address of an attorney-in-fact who is appointed to act on behalf of the surety within the Commonwealth of Virginia. The attorney-in-fact shall affix to the bond a certified and current copy of the power of attorney. If more than one Surety executes a bond, each shall be jointly and severally liable to the Owner for the entire amount of the bond. Sureties shall be selected by the Contractor, subject to approval by the Owner. No payment on the Contract shall be due and payable to the Contractor until the bonds have been approved by the Owner. The Standard Performance Bond and Standard Labor and Material Payment Bond will be held for one year after final acceptance of the Work or as described in the bond forms.
- (b) For the purposes of all Standard Labor and Material Payment Bonds entered into, the term “subcontractors” as used in §2.2-4337(A.2) of the Code of Virginia is interpreted to mean any contractors who participated in the prosecution of the Work undertaken by the Contractor (referred to in §2.2-4337(A.2) of the Code of Virginia as the “prime contractor”), whether such contractor had a direct contract with the Contractor (prime contractor) or whether there were one or more other intervening Subcontractors contractually positioned between it and the Contractor (prime contractor).
- (c) See §2.2-4338 of the Code of Virginia, for alternative forms of security for payment and/or performance bonds.
- (d) For contracts with a value of less than one hundred thousand dollars (\$100,000), the Contractor will not be required to provide a Standard Performance Bond and a Standard Labor and Material Payment Bond as described above unless the Invitation for Bid or Request for Proposal states that such bonds will be required.

9. SUBCONTRACTS

- (a) The Contractor shall, as soon as practicable after the signing of the Contract and prior to commencement of Work, notify the Owner and Architect/Engineer in writing of the names of all Subcontractors proposed for the Work and of such others as the Architect/Engineer may direct. Subcontractors whose names do not appear on the list must be approved by the Owner. Where the specifications establish qualifications or criteria for Subcontractors, manufacturers, or individuals

performing Work on the Project, the Contractor shall be responsible for ascertaining that those proposed meet the criteria or qualifications. The Contractor shall not employ any Subcontractor that the Owner may, within a reasonable time, object to as unsuitable. Neither the Owner nor the Architect/Engineer shall direct the Contractor to contract with any particular Subcontractor unless provided in the specifications or Invitation for Bids or Request for Proposal.

- (b) The Owner may select a particular Subcontractor for a certain part of the Work and designate on the Invitation for Bids or Request for Proposal that the Subcontractor shall be used for the part of the Work indicated and that the Subcontractor has agreed to perform the Work for the subcontract amount stipulated on the bid or proposal form. The Contractor shall include in his bid the amount stipulated by the Owner in the bid form. In such case, the Contractor shall be responsible for that Subcontractor and its work and all scheduling and coordination associated with the work. The Subcontractor shall be responsible to the Contractor for its work just as if the Contractor had selected the Subcontractor.
- (c) The Owner shall, on request, furnish to any Subcontractor, if practicable, the amounts of payments made to the Contractor, the Schedule of Values and Requests for Payment submitted by the Contractor and any other documentation submitted by the Contractor which would tend to show what amounts are due and payable by the Contractor to the Subcontractor.
- (d) The Contractor shall be fully responsible to the Owner for all acts and omissions of his agents and employees and all succeeding tiers of Subcontractors and Suppliers performing or furnishing any of the Work. Nothing in the Contract Documents shall create any contractual relationship between Owner or Architect/Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner or Architect/Engineer to pay for or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization, except as may otherwise be required by law.
- (e) The Contractor shall be fully responsible for his invitees at the Site and for those of his Subcontractors, Suppliers, and their employees, including any acts or omissions of such invitee.
- (f) The Contractor agrees that he alone is responsible for all dealings with his Subcontractors and Suppliers, and their subcontractors, employees and invitee, including, but not limited to, the Subcontractors' or Suppliers' claims, demands, actions, disputes and similar matters unless specifically provided otherwise by the Contract or by statute.

10. SEPARATE CONTRACTS

- (a) The Owner reserves the right to let other contracts in connection with the Project, the Work under which may proceed simultaneously with the execution of this Contract. The Contractor shall afford other separate contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work. The Contractor shall cooperate with them and shall take all reasonable action to coordinate his Work with theirs. If the Owner has listed other separate contracts in the Invitation for Bids or Request for Proposal which it expects to proceed simultaneously with the Work of the Contractor, and has included the estimated timing of such other Contracts in the Invitation for Bids or Request for Proposal, the Contractor shall integrate the schedule of those separate contracts into his scheduling. The Contractor shall make every reasonable effort to assist

the Owner in maintaining the schedule for all separate contracts. If the work performed by the separate contractor is defective or performed so as to prevent or threaten to prevent the Contractor from carrying out his Work according to the Contract, the Contractor shall immediately notify the Owner and the Architect/Engineer upon discovering such conditions.

- (b) If a dispute arises between the Contractor and any separate contractor(s) as to their responsibility for cleaning up as required by Sections 31(c) and 31(d) of these General Conditions, the Owner may clean up and charge the cost thereof to the respective contractors in proportion to their responsibility. If a Contractor disputes the Owner's apportionment of clean-up costs, it shall be that contractor's burden to demonstrate and prove the correct apportionment.

11. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

A. General Requirements:

(a) **Certificate of Insurance-General Contractor:** Prior to execution of the Contract by the Owner, the Contractor shall provide written evidence (certificates of insurance) that he has obtained all the insurance required hereunder from an insurer authorized to do business in Virginia and such insurance has been approved by the Owner. Insurance providers must have an agent licensed to do business in Virginia. The Owner must be identified on the certificate(s) of insurance as an additional insured for all types of insurance coverage, except for workers' compensation and professional liability, and there shall be a statement provided on the certificate(s) confirming the Owner is named as an additional insured and so endorsed to the policy(ies). In the event of cancellation of this insurance, not less than thirty (30) days prior written notice must be sent to the Owner.

(b) **Certificate of Insurance-Subcontractor:** The Contractor shall not allow any Subcontractor to commence Work on his subcontract until the same types of insurance in an appropriate amount have been obtained by the Subcontractor and approved by the Contractor. The Owner shall have no responsibility to verify compliance by the Contractor, or its subcontractors or suppliers. Approval of insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder. In the event of cancellation of this insurance, not less than thirty (30) days prior written notice must be sent to the Owner.

B. Insurance Requirements: By signing and submitting a proposal under this solicitation, the offeror certifies that if awarded the contract, it will purchase and maintain, at its sole expense, and from a company or companies authorized to do business within the Commonwealth of Virginia, insurance policies containing the following types of coverages and minimum limits, protecting from claims which may arise out of or result from the Offerors' performance or non-performance of services under this Contract, or the performance or non-performance of services under this Contract by anyone directly or indirectly employed by the Offeror or for whose acts it may be liable. The Supplemental General Conditions detail the minimum amounts required for this solicitation.

- (a) **Workers' Compensation** to include Employer's Liability of an amount not less than \$100,000/\$500,000/\$100,000. Coverage is compulsory for employers of three or more employees, to include the employer. Businesses who hire subcontractors who will perform the same trade or are hired to fulfill contract requirements must include the subcontractor's employees when determining the total number of employees for workers compensation. A waiver of subrogation in favor of the County of Albemarle and its officers, employees, agents, and volunteers must be endorsed on the workers

compensation policy. Contractors who fail to notify the County of increases in the number of employees that change their workers' compensation requirements under the Code of Virginia during the course of the contract shall be in noncompliance with the contract. This policy shall specifically list Virginia as a covered state.

- (b) General Liability – of an amount not less than \$1,000,000 per occurrence/\$2,000,000 aggregate limit, and a per project aggregate limit of \$2,000,000.-CGL form CG 2010 11/85 edition or its equivalent is required to be endorsed to the commercial general liability policy. Commercial General Liability is to include bodily injury and property damage, personal injury, advertising injury, arising out of premises, operations, and products and completed operations. The County of Albemarle and its officers, employees, agents and volunteers must be named as additional insureds on a primary and non-contributory basis and be so endorsed on the policy. A waiver of subrogation in favor of Albemarle County Government is required on the commercial general liability policy.
- (c) Automobile Liability – of an amount not less than \$1,000,000 per accident. Coverage is to include hired, owned, non-owned, temporary, and leased vehicles. The County of Albemarle and its officers, employees, agents and volunteers must be named as additional insureds on a primary and non-contributory basis and be so endorsed on the auto policy. A waiver of subrogation naming the County of Albemarle and its officers, employees, agents and volunteers is also required on the commercial auto policy.
- (d) Umbrella or Excess Liability Coverage- of an amount not less than \$1,000,000. Must be follow form and go over the underlying general liability, commercial auto and employers liability policies. The County of Albemarle and its officers, employees, agents and volunteers must be named as additional insureds on a primary and non-contributory basis and be so endorsed on the Umbrella or Excess Liability policy. A waiver of subrogation naming the County of Albemarle and its officers, employees, agents and volunteers is also required on the commercial Umbrella or Excess Liability policy.
- (e) Environmental/pollution - of an amount not less than \$1,000,000. County of Albemarle and its officers, employees, agents and volunteers must be named as additional insureds on a primary and non-contributory basis and be so endorsed on the Environmental/pollution Liability policy. A waiver of subrogation naming the County of Albemarle and its officers, employees, agents and volunteers is also required on the commercial Environmental/pollution Liability policy.
- (f) Professional (E&O) Liability Insurance - of an amount not less than \$1,000,000
- (g) Cyber Liability - of an amount not less than \$1,000,000

All insurance coverage:

1. shall be issued by an insurance carrier authorized to do business within the Commonwealth of Virginia and rated A – VIII or better, by A. M. Best Company or equivalent rating from an alternate recognized ratings agency, and otherwise acceptable to the County;
2. shall be kept in force throughout performance of services;
3. shall be an occurrence based policy; professional liability may be claims made basis;
4. shall include completed operations coverage;
5. shall contain a cross liability or severability of interest clause or endorsement. Insurance covering the specified additional insured shall be primary and non-contributory, and all other insurance carried by the additional insureds shall be excess insurance;
6. where additional insured required, such policy shall not have a restriction on the limits of coverage provided to the County as an additional insured. The County shall be entitled to protection up to the full limits of the offerors’s policy regardless of the minimum requirements specified in the Contract.

Proof Of Insurance: Prior to performance of any services or delivery of goods, the Offeror shall (i) have all required insurance coverage in effect; (ii) the Offeror shall deliver to the County certificates of insurance for all lines of coverage. The Offeror shall be responsible that such coverage evidenced thereby shall not be substantially modified or canceled without 30 days prior written notice to the County; and (iii) the Offeror shall deliver to the County endorsements to the policies which require the County and its officials, officers, employees, agents and volunteers be named as “additional insured”. Policies which require this endorsement include: Commercial General Liability, Automobile Liability and, umbrella or excess liability coverage as detailed below. Such endorsements must be approved by the County, and (iv) upon the request of the County, provide any other documentation satisfactory to the County in its sole discretion, evidencing the required insurance coverage, including but not limited to a copy of the insurance policy and evidence of payment of policy premiums. The Offeror shall require each of its subcontractors and suppliers to have coverage per the requirements herein in effect, prior to the performance of any services by such subcontractors and suppliers. Further, the Offeror shall ensure that all Required Insurance coverages of its subcontractors and suppliers is and remains in effect during performance of their services on the Project and certifies by commencement of the Work that this insurance and that of subcontractors is in effect and meets the requirements set forth herein. The County shall have no responsibility to verify compliance by the Offeror or its subcontractors and suppliers.

Effect Of Insurance: Compliance with insurance requirements shall not relieve the Offeror of any responsibility to indemnify the County for any liability to the County, as specified in any other provision of this contract, and the County shall be entitled to pursue any remedy in law or equity if the Offeror fails to comply with the contractual provisions of this contract. Indemnity obligations specified elsewhere in this Contract shall not be negated or reduced by virtue of any insurance carrier's denial of insurance coverage for the occurrence or event which is the subject matter of the claim, or by any insurance carrier’s refusal to defend any named insured.

Waiver Of Subrogation: The Offeror agrees to release and discharge the County of Albemarle and its officers, employees, agents and volunteers of and from all liability to the Offeror, and to anyone claiming by, through or under the Offeror, by subrogation or otherwise, on account of any loss or damage to tools, machinery, equipment or other property, however caused.

Sovereign Immunity: Nothing contained herein shall affect, or shall be deemed to affect, a waiver of

the County's sovereign immunity under law.

Right to Revise or Reject: The County reserves the right, but not the obligation, to revise any insurance requirement not limited to limits, coverages and endorsements, or reject any insurance policies which fail to meet the criteria stated herein. Additionally, the County reserves the right, but not the obligation, to review and reject any insurer providing coverage due to its poor financial condition or failure to operate legally.

Umbrella or Excess Liability Coverage which includes premises/operations, product/completed operations, and has per-occurrence limits as detailed in the Supplemental General Conditions. This insurance shall name the County and its officials, officers, and employees and agents as "additional insureds" by **endorsement** to the Umbrella or Excess Liability policy. Such policy shall not have a restriction on the limits of coverage provided to the County of Albemarle as an additional insured. The County of Albemarle shall be entitled to protection up to the full limits of the Offeror's policy regardless of the minimum requirements specified in this contract.

Professional Liability Insurance: At its sole expense, and prior to commencing any activities under this Agreement, Offeror shall secure professional liability insurance, covering any damages caused by the negligent or wrongful acts or omissions of the Offeror, its employees and agents in the performance of this Agreement, with coverage in an amount as detailed in the Supplemental General Conditions ("Required Insurance"). Offeror shall maintain the Required Insurance in effect throughout the Term of this Agreement and for a period of three (3) years following final acceptance of the Project by the County. Upon execution of this Agreement, Offeror shall provide the County with a certificate of insurance, or other written documentation satisfactory to the County in its sole discretion, issued by Offeror's insurance company(ies), confirming the Required Insurance and the beginning and ending date(s) of Contractor's policy(ies). Upon receipt of any notice, verbal or written, that the Required Insurance is subject to cancellation, Offeror shall immediately (within one business day) notify the County. Offeror's failure to comply with any of the requirements of this Section shall constitute a material breach of this Agreement entitling the County to terminate this Agreement without notice to Offeror and without penalty to the County.

C. Installation Floater: if applicable, the Contractor is required to purchase an Installation Floater to cover their own property to be installed into a building. Coverage is provided for equipment and/or machinery being installed, renovated or repaired during the course of construction.

12. BUILDER'S RISK INSURANCE

- (a) The Contractor, at his cost, shall obtain and maintain in the names of the Owner and the Contractor builder's risk insurance on a special causes of loss form, including the costs of excavations, backfills, foundations, underground utilities and site work (or fire, extended coverage, vandalism and malicious mischief insurance, if approved by the Owner) upon the entire structure or structures on which the Work of this Contract is to be done, and upon all material in or adjacent thereto which is intended for use thereon, to one hundred percent (100%) of the insurable value thereof. Such insurance may include a deductible provision if the Owner so provides in the Supplemental General Conditions, in which case the Contractor will be liable for such deductions, whenever a claim arises. The loss, if any, is to be made adjustable with and payable to the Owner, in accordance with its interests, as they may appear. The Owner, its officers, employees and its agents, shall be named as

loss payee in any policy of insurance issued. Written evidence of the insurance shall be filed with the Owner prior to execution of the Contract by the Owner. Insurance providers must be authorized to do business in Virginia and have an agent licensed to do business in Virginia. In the event of cancellation of this insurance, not less than thirty (30) days prior written notice must be sent to the Owner. A copy of the policy of insurance shall be given to the Owner upon demand.

- (b) Certain projects, such as renovations and interior modifications of existing buildings, may be covered by the Owner's insurance and may be excluded from the Builder's risk policy purchased by the contractor insurance required by this section. In those instances, the Supplemental General Conditions for the project shall expressly exclude the project from the requirements of Subsection 12(a).
- (c) Any insurance provided through the County of Albemarle, Virginia, for construction, additions or renovations will not extend to Contractor's nor Subcontractors' buildings, equipment, materials, tools or supplies unless these items are to become property of the Owner upon completion of the Project and the Owner has assumed responsibility for such items at the time of the loss.

13. TAXES, FEES AND ASSESSMENTS

The Contractor shall, without additional expense to the Owner, pay all applicable federal, state, and local taxes, fees, and assessments except the taxes, fees and assessments on the real property comprising the Site of the project. The Owner shall pay inspection fees to the local building official except for reinspection fees resulting from incomplete or defective work.

14. PATENTS

The Contractor shall obtain all licenses necessary to use any invention, article, appliance, process or technique of whatever kind and shall pay all royalties and license fees. The Contractor shall hold the Owner, its officers, agents and employees, harmless against any loss or liability for or on account of the infringement of any patent rights in connection with any invention, process, technique, article or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless such invention, process, technique, article or appliance is specifically named in the specifications or plans as acceptable for use in carrying out the Work. If, before using any invention, process, technique, article or appliance specifically named in the specifications or plans as acceptable for use in carrying out the Work, the Contractor has or acquires information that the same is covered by letters of patent making it necessary to secure the permission of the patentee, or other, for the use of the same, he shall promptly advise the Owner and the Architect/Engineer. The Owner may direct that some other invention, process, technique, article or appliance be used. Should the Contractor have reason to believe that the invention, process, technique, article or appliance so specified is an infringement of a patent, and fail to inform the Owner and the Architect/Engineer, he shall be responsible for any loss or liability due to the infringement.

15. ARCHITECT/ENGINEER'S STATUS

- (a) The Architect/Engineer shall have authority to endeavor to secure the faithful performance by Owner and Contractor of the Work under the Contract. He shall review the Contractor's Submittals for conformance to the requirements of the Contract Documents and return copies to the Contractor with appropriate notations. He shall interpret the requirements of the plans and specifications and issue Field Orders to the Contractor as may be required. He shall recommend to the Owner suspension of the Work (in whole or in part) whenever such suspension may be necessary to ensure the proper execution of the Contract. He shall have authority to reject, in writing, Work, including material, installation or workmanship, which does not conform to the requirements of the plans and specifications. He shall determine the progress and quality of the Work, subject to the right of the Owner to make an overriding decision to the contrary. Upon request by the Contractor, the Architect/Engineer shall confirm, in writing within ten (10) days, any oral order or determination made by him.
- (b) The Architect/Engineer shall have no authority to approve or order changes in the Work which alter the design concept or which call for an extension of time or a change in the Contract Price.
- (c) The Owner shall have the right, but not the duty, to countermand any decision of the Architect/Engineer and to follow or reject the advice of the Architect/Engineer, including but not limited to acceptance of the Work.
- (d) All orders from the Owner to the Contractor shall either be transmitted through the Architect/Engineer or communicated directly to the Contractor and the Architect/Engineer by the Owner.
- (e) Should the Owner choose to employ another or different Architect/Engineer, the status of the Architect/Engineer so employed shall be the same as that of the former Architect/Engineer.
- (f) The Architect/Engineer will provide to the Owner and the Contractor after each visit to the Site, a written report indicating the date, time of day, weather conditions and the names of the persons representing the Architect/Engineer who participated in the visit. The report will advise the Owner of any problems that were noted and shall compare the Architect/Engineer's observations of the actual progress of the Work with that reported by the Contractor. On the basis of his on-site observations as Architect/Engineer, he will make every reasonable effort to guard the Owner against defects and deficiencies in the Work of the Contractor. He shall have the authority to inspect the Work, to note and report Defective Work and deviations from the Contract Documents to the Owner, to reject same, and to recommend to the Owner the suspension of the Work when necessary to prevent Defective Work from proceeding or being covered.
- (g) The Architect/Engineer shall not be responsible for construction means, methods, techniques, sequences or procedures (other than those expressly specified in Contract Documents), or for safety precautions and programs in connection with the Work, and he shall not be responsible for the Contractor's failure to carry out the Contractor's own responsibilities.
- (h) The provisions of this section are included as information only to describe the relationship between the Owner, A/E, and Contractor. No failure of the A/E to act in accordance with this section shall relieve the Contractor from his obligations under the Contract or create any rights in favor of the Contractor.

16. INSPECTION

- (a) All material and workmanship shall be subject to inspection, examination and testing by the Owner, the Architect/Engineer, the Project Inspector, authorized inspectors and authorized independent testing entities at any and all times during manufacture and/or construction. The Architect/Engineer and the Owner shall have authority to reject defective material and workmanship and require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefor, and the Contractor shall promptly segregate and remove the rejected material from the Site. If the Contractor fails to proceed at once with replacement of rejected material and/or the correction of defective workmanship, the Owner may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost to the Contractor, or may terminate the right of the Contractor to proceed as provided in Section 40 of these General Conditions, the Contractor and surety being liable for any damage to the same extent as provided in Section 40 for termination thereunder.
- (b) Site inspections, tests conducted on Site or tests of materials gathered on Site, which the Contract requires to be performed by independent testing entities, shall be contracted and paid for by the Owner. The Contractor shall schedule all required tests, approvals and inspections of the Work or other work related to the Project. If items/areas to be inspected and/or tested are not ready for inspection when the testing agency/inspector arrives on-site at the pre-arranged time, the Contractor is responsible for all costs associated with inspection delays, including but not limited to reinspection fees. The Contractor shall give proper notice to all required parties of such tests, if feasible, so that the Owner and others may observe the tests at the normal place of testing. Unless otherwise required by the Contract Documents, required certificates of testing, approval or inspection shall be secured by the Contractor and promptly delivered to the Owner. Examples of such tests are the testing of cast-in-place concrete, foundation materials, soil compaction, pile installations, caisson bearings and steel framing connections. The Contractor shall promptly furnish, without additional charge, all reasonable facilities, labor and materials necessary and convenient for making such tests. Except as provided in (d) below, whenever such examination and testing finds defective materials, equipment or workmanship, the Contractor shall reimburse the Owner for the cost of reexamination and retesting. Although conducted by independent testing entities, the Owner will not contract and pay for tests or certifications of materials, manufactured products or assemblies which the Contract, codes, standards, etc., require to be tested and/or certified for compliance with industry standards such as Underwriters Laboratories, Factory Mutual or ASTM. If fees are charged for such tests and certifications, they shall be paid by the Contractor. The Contractor shall also pay for all inspections, tests, and certifications which the Contract specifically requires him to perform or to pay, together with any inspections and tests which he chooses to perform for his own purposes, but are not required by the Contract.
- (c) Where Work is related to or dependent on the Defective Work, the Contractor shall stop such related or dependent Work until the Defective Work or deficiency is corrected or an alternative solution is presented that is satisfactory to the Owner. Where Work is rejected because of defective material or workmanship, the Contractor shall stop like Work in other areas or locations on the Project until the matter is resolved and the Owner has approved corrective measures.
- (d) Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire Work to make an examination of any part of the Work already completed, by removing or tearing out portions of the Work, the Contractor shall on request promptly furnish all necessary

facilities, labor and material to expose the Work to be tested to the extent required. If such Work is found to be defective in any respect, due to the fault of the Contractor or his Subcontractors, the Contractor shall defray all the expenses of uncovering the Work, of examination and testing, and of satisfactory reconstruction. If, however, such Work is found to meet the requirements of the Contract, the actual cost of the Contractor's labor and material necessarily involved in uncovering the Work, the cost of examination and testing, and Contractor's cost of material and labor necessary for replacement including a markup of ten percent (10%) for overhead and profit shall be paid to the Contractor and he shall, in addition, if completion of the Work has been delayed thereby, be granted a suitable extension of time. Notwithstanding the foregoing, the Contractor shall be responsible for all costs and expenses in removing and replacing the Work if the Contractor had covered the Work prior to any inspection or test contrary to the instructions of the A/E, Owner or Project Inspector.

(e) The Project Inspector has the right and the authority to:

- (1) Inspect all construction materials, equipment, and supplies for quality and for compliance with the Contract Documents and/or approved shop drawings and submittals;
- (2) Inspect workmanship for compliance with the standards described in the Contract Documents;
- (3) Observe and report on all tests and inspections performed by the Contractor;
- (4) Recommend rejection of Work which does not conform to requirements of the Contract Documents;
- (5) Keep a record of construction activities, tests, inspections, and reports;
- (6) Attend all joint Site construction meetings and inspections held by the Owner and/or the A/E with the Contractor;
- (7) Check materials and equipment, together with documentation related thereto, delivered for conformance with approved Submittals and the Contract;
- (8) Check installations for proper workmanship and conformance with shop drawing and installation instructions;
- (9) Assist in the review and verification of the Schedule of Values & Certificate for Payment, submitted by the Contractor each month;
- (10) Do all things for or on behalf of the Owner as the Owner may subsequently direct in writing.

(f) The Project Inspector has no authority to:

- (1) Authorize deviations from the Contract Documents;
- (2) Enter into the area of responsibility of the Contractor's superintendent;
- (3) Issue directions relative to any aspect of construction means, methods, techniques, sequences or procedures, or in regard to safety precautions and programs in connection with the Work;

- (4) Authorize or suggest that the Owner occupy the Project, in whole or in part; or
- (5) Issue a certificate for payment.
- (g) The duties of the Project Inspector are for the benefit of the Owner only and not for the Contractor. The Contractor may not rely upon any act, statement, or failure to act on the part of the Project Inspector, nor shall the failure of the Project Inspector to properly perform his duties in any way excuse Defective Work or otherwise improper performance of the Contract by the Contractor.

17. PROJECT MANAGEMENT AND SUPERVISION BY CONTRACTOR

- (a) The Contractor shall have a competent project manager or superintendent, satisfactory to the Architect/Engineer and the Owner, on the Site at all times during the progress of the Work. The Contractor shall submit for approval by the Owner and Architect/Engineer the resumes for the proposed project manager and superintendent within ten (10) days from Notice of Intent to Award Contract. The project manager and superintendent shall be familiar with and be able to read and understand the plans and specifications, and be capable of communicating orally and in writing with the Owner's project manager and/or inspectors and the Contractor's workers. The Contractor shall be responsible for all construction means, methods, techniques, sequences and procedures, for coordinating all portions of the Work under the Contract except where otherwise specified in the Contract Documents, and for all safety and worker health programs and practices. The Contractor shall notify the Owner, in writing, and obtain approval, of any proposed change in project manager or superintendent, including the reason therefor, prior to making such change.
- (b) The Contractor shall, at all times, enforce strict discipline and good order among the workers on the Project, and shall not employ on the Work, or contract with, any unfit person, anyone not skilled in the Work assigned to him, or anyone who will not work in harmony with those employed by the Contractor, the Subcontractors, the Owner or the Owner's separate contractors and their subcontractors.
- (c) The Owner may, in writing, require the Contractor to remove from the Site any employee or Subcontractor's employee the Owner deems to be incompetent, careless, not working in harmony with others on the Site, or otherwise objectionable, but the Owner shall have no obligation to do so.

18. CONSTRUCTION SUPERVISION, METHODS AND PROCEDURES

- (a) The Contractor shall be solely responsible for supervising and directing the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction and for coordinating all portions of the Work under the Contract, except where otherwise specified in the Contract Documents. However, the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract. The Contractor is solely responsible to the Owner that the finished Work complies with the Contract Documents.

The Contractor shall be solely responsible for health and safety precautions and programs for workers and others in connection with the Work. No inspection by, knowledge on the part of, or acquiescence by the Architect or Engineer, the Project Inspector, the Owner, the Owner's employees and agents, or any other entity whatever shall relieve the Contractor from its sole responsibility for compliance with the requirements of the Contract or its sole responsibility for health and safety programs and precautions.

- (b) If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Architect/Engineer, subject to the Owner's right to disapprove. The Contractor must submit its written request for the substitution to the Architect/Engineer with sufficient information to allow the Architect/Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract.
- (c) The divisions and sections of the Specifications and the identification of any drawings shall not control the Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

19. SCHEDULE OF THE WORK

- (a) **General:** The Contractor is responsible for the scheduling and sequencing of the Work, for coordinating the Work, for monitoring the progress of the Work, and for taking appropriate action to keep the Work on schedule. The Contractor may attempt to achieve Substantial Completion on or before the Time for Completion or the Contract Completion Date established by the Contract and receive payment in accordance with Section 36 for the Work completed each period. However, the date established by the Contract Documents as the deadline for achieving Substantial Completion must be used in all schedules as the date on which Substantial Completion will be achieved. The time (in days) between the Contractor's planned early completion and the contracted Time for Completion is part of the Project "Total Float" time and will be used as such. Extensions of time pursuant to Sections 38 and 42, damages for delay, and all other matters between the Owner and the Contractor will be determined using the contractually required Substantial Completion date, not an early Substantial Completion date planned by the Contractor.

Within two (2) weeks after the Contractor signs the Contract Between Owner and Contractor, unless otherwise extended by the Owner at the time of the signing, the Contractor shall prepare and submit to the Owner, with a copy to the Architect/Engineer, a preliminary bar graph milestone schedule for accomplishing the Work based upon the Time for Completion stated in the Contract. The preliminary bar graph schedule shall be in sufficient detail to show the sequencing of the various trades for each floor level, wing or work area. The Owner will notify the Contractor of its acceptance of or objections to the preliminary schedule within seven (7) days of receipt by the Owner. A fully complete Project schedule for accomplishing the Work must be submitted and approved by the Owner prior to making application for the first payment.

The Owner's failure to reject or its acceptance of any schedule, graph, chart, recovery schedule, updated schedule, plan of action, etc. shall not constitute a representation or warranty by the Owner, including but not limited to a representation or warranty that the schedule is feasible or practical nor

shall any such acceptance or failure to reject relieve the Contractor from sole responsibility for completing the Work within the time allowed.

No progress payments will be payable to the Contractor until after it has submitted a preliminary schedule which is acceptable to the Owner. Neither the second progress payment nor any subsequent payment shall be payable to the Contractor until it has submitted a fully complete Project schedule accepted by the Owner. Nor shall subsequent progress payments be payable to the Contractor unless and until he maintains the monthly bar graphs or status reports required by Section 19(e) herein or unless and until he provides any recovery schedule pursuant to Section 19(f) herein.

Failure to provide a satisfactory preliminary or fully complete Project schedule within the time limits stated above shall be a breach of contract for which the Owner may terminate the Contract in the manner provided in Section 40 of these General Conditions.

The fully complete Project schedule for accomplishing the Work shall be of the type set forth in subparagraph (1) or (2) below, as appropriate:

- (1) For Contracts with a price of \$500,000 or less, a bar graph schedule will satisfy the above requirement. The schedule shall indicate the estimated starting and completion dates for each major element of the work. See (b) below.
 - (2) For Contracts with a price over \$500,000, a Critical Path Method (CPM) schedule shall be utilized to control the planning and scheduling of the Work. The CPM schedule shall be the responsibility of the Contractor and shall be paid for by the Contractor. See (c) below.
- (b) **Bar Graph Schedule:** Where a bar graph schedule is required, it shall be time-scaled in weekly increments, shall indicate the estimated starting and completion dates for each major element of the Work by trade and by area, level, or zone, and shall schedule dates for all salient features, including but not limited to the placing of orders for materials, submission of shop drawings and other Submittals for approval, approval of shop drawings by Architect/Engineer, the manufacture and delivery of material, the testing and the installation of materials, supplies and equipment, and all Work activities to be performed by the Contractor.

The Contractor shall allow sufficient time in his schedule for adverse weather anticipated in Section 6 and for the A/E to conduct whatever associated reviews or inspections as may be required under the A/E's contract with the Owner. If the A/E and the Contractor are unable to agree as to what constitutes sufficient time, the Owner shall determine the appropriate duration for such Architect/Engineer activities. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

It is the Contractor's responsibility to submit a schedule that shows Substantial Completion of the Work by the Contract Time for Completion or the Contract Completion Date and any interim deadlines established by the Contract.

- (c) **CPM Schedule:** Where a CPM schedule is required, it shall be in the time-scaled precedence format using the Contractor's logic and time estimates. The CPM schedule shall be drawn or plotted with activities grouped or zoned by Work area or subcontract as opposed to a random (or scattered) format.

The CPM schedule shall be time-scaled on a weekly basis and shall be drawn or plotted at a level of detail and logic which will schedule all salient features of the Work, including not only the actual construction Work for each trade, but also the submission of shop drawings and other Submittals for approval, approval of shop drawings by Architect/Engineer, placing of orders for materials, the manufacture and delivery of materials, the testing and installation of materials and equipment, and all Work activities to be performed by the Contractor. Failure to include any element of Work required for the performance of this Contract shall not excuse the Contractor from completing all Work required within the Time for Completion, Contract Completion Date and any interim deadlines established by the Contract.

The Contractor shall allow sufficient time in his schedule for adverse weather anticipated in Section 6 and for the A/E to conduct whatever associated reviews or inspections as may be required under the A/E's contract with the Owner. If the A/E and the Contractor are unable to agree as to what constitutes sufficient time, the Owner shall determine the appropriate duration for such Architect/Engineer activities. Each Work activity will be assigned a time estimate by the Contractor. One day shall be the smallest time unit used.

It is the Contractor's responsibility to submit a schedule that shows Substantial Completion of the Work by the Contract Time for Completion or the Contract Completion Date and any interim deadlines established by the Contract.

When completed, the CPM schedule shall be submitted to the Architect/Engineer and the Owner for review. The CPM schedule will identify and describe each activity, state the duration of each activity, the calendar dates for the early and late start and the early and late finish of each activity, and clearly highlight all activities on the critical path. "Total float" and "free float" shall be indicated for all activities. Float time, whether "free float" or "total float" as defined in Section 1, shall not be considered for the exclusive use or benefit of either the Owner or the Contractor, but must be allocated in the best interest of completing the Work within the Time for Completion or the Contract Completion Date. Extensions to the Time for Completion or the Contract Completion Date, when granted by Change Order, will be granted only when equitable time adjustment exceeds the Total Float in the activity or path of activities affected by the change. The CPM schedule shall also show what part of the Contract Price (expressed in U.S. dollars) is attributable to each activity on the schedule, the sum of which for all activities shall equal the total Contract Price. The CPM schedule shall also show the planned workforce (crew size and number of crews) and the major pieces of equipment required for each activity on the schedule. When acceptable to the Owner and Architect/Engineer as to compliance with the requirements of this Section, but not as to logic, the schedule shall become the CPM schedule for the Project. Acceptance of the schedule by the Owner does not indicate agreement with nor responsibility for the proposed or actual duration of any activity shown on the accepted schedule.

- (d) **Progress of Work:** The Contractor shall commence and complete the work in accordance with the approved schedule. Contractor acknowledges that it may be required to perform Work out of the sequence originally planned to maintain progress on the project. Contractor acknowledges that it has anticipated certain reasonable delays and disruptions as part of the contract price. No additional reimbursement will be forthcoming for out of sequence work. Time is of the essence. If the Contractor fails to employ sufficient competent personnel as may be required to perform the Work or otherwise causes delays which result in the Contractor's failure to complete the Work in the given time, the Contractor will indemnify and hold the Owner harmless for any additional expenses or

damages (including, but not limited to, liquidated damages) arising out of such delay or inability to proceed with the Work. Liquidated Damages, if any, shall be referenced in the Supplemental General Conditions.

- (e) **Monthly Project Reports:** The Contractor shall review progress not less than each month, but as often as necessary to properly manage the Project and stay on schedule. The Contractor shall collect and preserve information on Change Orders, including extensions of time. The Contractor shall evaluate this information and update the latest accepted schedule as often as necessary to finish within the Contract Time for Completion or before the Contract Completion Date. The Contractor shall submit to the A/E along with his monthly request for payment a copy of the bar graph schedule annotated to show the current progress. For projects requiring a CPM schedule, the Contractor shall submit a monthly report of the status of all activities. The bar graph schedule or monthly status report submitted with each periodic request for payment shall show the Work completed to date in comparison with the Work scheduled for completion, including but not limited to the dates for the beginning and completion of the placing of orders; the manufacture, testing and installation of materials, supplies and equipment. The form shall be approved by the A/E and the Owner; however, a bar graph or a CPM schedule marked, colored or annotated to reflect the above will usually satisfy this requirement. If any elements of the Work are behind schedule, regardless of whether they may prevent the Work from being completed on time, the Contractor must indicate in writing in the report what measures he is taking and plans to take to bring each such element back on schedule and to ensure that the Time for Completion or Contract Completion Date is not exceeded.
- (f) **Progress Delay:** Should any of the following conditions exist, the Owner may require the Contractor to prepare, at no extra cost to the Owner, a plan of action and a recovery schedule for completing the Work by the Contract Time for Completion or the Contract Completion Date:
- (1) The Contractor' monthly progress report indicates delays that are, in the opinion of the A/E or the Owner, of sufficient magnitude that the Contractor's ability to complete the Work by the scheduled Time for Completion or the Contract Completion Date is brought into question;
 - (2) The CPM schedule sorted by early finish shows the Contractor to be thirty (30) or more days behind the critical path schedule at any time during construction up to thirty (30) days prior to scheduled Substantial Completion date;
 - (3) The Contractor desires to make changes in the logic (sequencing of Work) or the planned duration of future activities of the CPM schedule which, in the opinion of the Architect/Engineer or the Owner, are of a major nature.

The plan of action and recovery schedule, when required, shall explain and display how the Contractor intends to regain compliance with the current accepted, fully completed, Project CPM schedule, as updated by approved change orders.

The plan of action, when required, shall be submitted to the Owner for review within two (2) business days of the Contractor receiving the Owner's written demand. The recovery schedule, when required, shall be submitted to the Owner within five (5) calendar days of the Contractor's receiving the Owner's written demand.

If, in the opinion of the A/E or Owner, the recovery schedule is deemed insufficient, the Contractor, if directed by the Owner, will be required to remedy the schedule delay, without additional compensation, by one of the following manners:

- (1) Increased manpower by Contractor or its subcontractors;
 - (2) Increased number of shifts, including night and weekend work.
- (g) **Early Completion of Project:** The Contractor may attempt to achieve Substantial Completion on or before the Time for Completion or the Contract Completion Date. However, such planned early completion shall be for the Contractor's convenience only and shall not create any additional rights of the Contractor or obligations of the Owner under this Contract, nor shall it change the Time for Completion or the Contract Completion Date. The Contractor shall not be required to pay damages to the Owner because of its failure to achieve Substantial Completion by its planned earlier date. Likewise, the Owner shall not pay the Contractor any additional compensation for achieving Substantial Completion early nor will the Owner owe the Contractor any compensation should the Owner, its officers, employees, or agents cause the Contractor not to achieve Substantial Completion earlier than the date required by the Contract Documents.

If the Contractor seeks to change the Time for Completion or the Contract Completion Date to reflect an earlier completion date, he may request or propose such a change. The Owner may, but is not required to, accept such proposal. However, a change in the Time for Completion or the Contract Completion Date shall be accomplished only by Change Order. If the Contractor's proposal to change the Time for Completion or the Contract Completion Date is accepted, a Change Order will be issued stating that all references in the Contract, including these General Conditions, to the Time for Completion or the Contract Completion Date shall thereafter refer to the date as modified, and all rights and obligations, including the Contractor's liability for actual damages, delay damages and/or liquidated damages, shall be determined in relation to the date, as modified.

20. SCHEDULE OF VALUES AND CERTIFICATE FOR PAYMENT

- (a) Before submittal of the first partial payment request under the Contract, the Contractor shall prepare for review and approval of the Architect/Engineer and the Owner, a schedule of the estimated values listed by trades or by specification sections of the Work, totaling the Contract Price. Where the total project has multiple parts or phases, the Contractor shall prepare appropriate schedules of values to facilitate reviews and justifications for payments.

All requests for payment shall be made on the Schedule of Values and Certificate for Payment (Form AC-12) pages 1 and 2. Succeeding pages may be on the Form AC-12 continuation sheets or a computerized spreadsheet which is in the same format and which contains the same information.

- (b) If the Contractor requests, or intends to request, payment for materials stored in an approved and secure manner, the Schedule of Values must indicate the amount for labor and the amount for materials, and in a supplement thereto must include an itemized list of materials for that trade or Work section. The material breakdown shall be in sufficient detail to allow verification of the quantities required for the Project, the quantities delivered, the Work completed, and the quantities stored on or off Site. Refer to Section 36 of these General Conditions for additional requirements associated with stored materials and/or equipment.

- (c) The “Value of Work Completed” portion of the Form AC-12 shall be completed, the Contractor’s certification completed and signed, and the appropriate substantiating material attached to each Certificate for Payment (AC-12). Such substantiating material includes, but is not limited to, invoices for materials, delivery tickets, time sheets, payroll records, daily job logs/records, and similar materials which, in the opinion of the Owner and the A/E, are necessary or sufficient to justify payment of the amount requested.
- (d) The labor progress for any task or activity shall be calculated based upon the percentage of Work complete up to fifty percent (50%) of the completion of the task or activity. Thereafter, the evaluation of labor progress will be based upon the effort required to complete that task or activity. The material progress shall be calculated as the invoiced dollar cost of materials used in relationship to the amount estimated as necessary to complete a particular element of Work. When calculating material progress, credit shall be given for installed material as well as that stored on the Site and any material stored off Site which has been certified by the Architect/Engineer in accordance with Section 36 of these General Conditions.
- (e) Should Work included in previous Form AC-12 submittals, and for which payment has been made, subsequently be identified, by tests, inspection, or other means, as not acceptable or not conforming to Contract requirements, the “Value of Work Completed” portion of the first Form AC-12 submitted after such identification shall be modified to reduce the “completed” value of that Work by deleting the value of that which has been identified as not acceptable or nonconforming.
- (f) The Contractor shall not include Change Order work on the Form AC-12 until such time as the Contractor is in receipt of a fully executed Change Order from the Owner.

21. ACCESS TO WORK

The Architect/Engineer, the Owner, the Project Manager, the Owner’s inspectors and other testing personnel, inspectors from the Department of Labor and Industry, and others authorized by the Owner, shall have access to the Work at all times. The Contractor shall provide proper facilities for access and inspection.

22. SURVEYS AND LAYOUT

- (a) The Owner shall furnish the Contractor all necessary documents showing property lines and the location of existing buildings and improvements. The Contractor shall provide competent surveying and engineering services to execute the Work in accordance with the Contract and shall be responsible for the accuracy of these surveying and engineering services.
- (b) Such general reference points and benchmarks on the Site as will enable the Contractor to proceed with the Work will be established in the plans and specifications. If the Contractor finds that any previously established reference points have been lost or destroyed, he shall promptly notify the Architect/Engineer.

- (c) The Contractor shall protect and preserve the established benchmarks and monuments and shall make no changes in locations without written notice to the Architect/Engineer and the written approval from the Owner. Any of these which may be lost or destroyed or which require shifting because of necessary changes in grades or locations shall, subject to prior written approval of the Owner, be replaced and accurately located by the Contractor.

23. PLANS AND SPECIFICATIONS

- (a) The general character and scope of the Work are illustrated by the plans and the specifications. If the Contractor deems additional detail or information to be needed, he may request the same in writing from the Architect/Engineer. His request shall precisely state the detail or information needed and shall explain why it is needed. The Contractor shall also indicate a date when the requested information is required. The Architect/Engineer shall provide by Field Order such further detail and information as is necessary by the date required so long as the date indicated is reasonable. Any additional drawings and instructions supplied to the Contractor shall be consistent with the Contract Documents, shall be true developments thereof, and shall be so prepared that they can be reasonably interpreted as a part thereof. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.
- (b) If the Contractor finds a contract error, or other discrepancy in the plans or specifications, he shall notify the Architect/Engineer in writing as soon as possible, but before proceeding with the affected Work. The Architect/Engineer shall issue a clarification by Field Order to the Contractor stating the correct requirements. If the Contractor deems the Field Order requires additional Work, he shall notify the A/E of such prior to proceeding with that Work and he shall submit a request for Change Order along with a detailed substantiating cost proposal thru the A/E to the Owner within ten (10) calendar days.
- (c) In case of differences between small and large scale drawings, the large scale drawings shall govern. Where on any of the drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the Work.
- (d) Where the word “similar” appears on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the Work.
- (e) The specifications may be divided into several parts, or sections, for convenience only, since the entire specifications must be considered as a whole. The divisions of the specifications are not intended to control the Contractor in dividing the Work among Subcontractors or to limit the Work performed by any trade. The Contractor shall be solely responsible for the coordination of the trades, Subcontractors and vendors engaged in the Work.
- (f) Measurements or dimensions shown on the drawings for Site features, utilities and structures shall be verified at the Site by the Contractor. The Contractor shall not scale measurements or dimensions from the drawings. If there are discrepancies, the Architect/Engineer shall be consulted. If new Work is to connect to, match with or be provided in existing Work, the Contractor shall verify the actual existing conditions and necessary dimensions prior to ordering or fabrication.

- (g) **As-Built Drawings:** The Contractor shall maintain at the Site for the Owner one copy of all drawings, specifications, addenda, approved shop or setting drawings, Change Orders and other modifications (collectively referred to herein as “As-Built Drawings”) in good order and marked to record all changes as they occur during construction. These shall be available to the Architect/Engineer, the Owner, the Project Inspector, the Owner’s other inspectors and to the Owner’s testing personnel. The drawings shall be neatly and clearly marked in color during construction to record all variations made during construction. The representation of such variations shall include such supplementary notes, symbols, legends, and details as may be necessary to clearly show the as-built construction. These As-Built Drawings are to be a separate set of drawings from the set of drawings used by the Contractor’s superintendent or supervisor for every day management of the project.
- (h) **Record Drawings:** Upon completion of the Work and prior to the final inspection, the Contractor shall deliver to the Architect/Engineer, for review and preparation of the Record Drawings, one complete set of “As-Built Drawings” referred to in the preceding subsection.
- (i) **Close-out and Operations and Maintenance Documents:** Upon completion of the Work and prior to final payment, the Contractor shall deliver to the Architect/Engineer, two complete hard copy sets of the Close-out and Operations and Maintenance Documents as specified in the Project Manual Specifications. Additionally, the Contractor will provide two CDs or other acceptably formatted electronic copy of the abovementioned documents to accompany the hard copy versions. The electronic version will be organized with folders and appropriate hierarchy as to represent the hard copy versions. The documentation found on the electronic version will be in PDF format, or other acceptable format as directed by the Owner.

24. SUBMITTALS

- (a) The Contractor shall submit a listing of all Submittals required by the Architect/Engineer or which the Contractor identifies as necessary, fixing the dates for the submission of shop or setting drawings, samples and product data. The listing shall be in a format acceptable to the Architect/Engineer. The Contractor shall identify all Submittals with the Owner’s Project Title as required by Section 2(f). There will be no payments to the Contractor until a listing of all Submittals is submitted and approved by the Architect/Engineer and Owner.
- (b) Submittals shall be forwarded to the Architect/Engineer for approval if required by the specifications or if requested by the Architect/Engineer or the Owner. No part of the Work dealt with by a Submittal shall be fabricated by the Contractor, save at his own risk, until such approval has been given.
- (c) The Contractor shall furnish to the Architect/Engineer for approval the name of the manufacturer, the model number, and other identifying data and information respecting the performance, capacity, nature and rating of the machinery and mechanical and other equipment which the Contractor contemplates incorporating in the Work. When Submittals are required by this Contract for materials, the Contractor shall furnish full information concerning the material or articles which he contemplates incorporating in the Work. When required, samples shall be submitted for approval at the Contractor’s expense, with all shipping charges prepaid. Machinery, equipment, material and articles installed or used without required approval shall be at the risk of subsequent rejection.

- (d) The Owner prefers and encourages the Contractor to submit all shop drawings to the Architect/Engineer electronically. However, shop drawings may be submitted in the form of six (6) blue line or black line prints. Catalog cuts, product data and other non-reproducible literature, except certificates, shall be submitted in six (6) copies minimum, of which three (3) will be retained by the Architect/Engineer and the remainder will be returned to the Contractor.
- (e) The Owner prefers and encourages the Contractor to submit all Submittals to the Architect/Engineer electronically. Submittals shall be accompanied by a letter of transmittal which shall list the Project Title, the Submittals included, the specification section number applicable to each, and the date shown on each Submittal. Submittals shall be complete in every respect and bound in sets if not submitted electronically. Each Submittal shall be clearly marked to show each item, component and/or optional feature proposed to be incorporated into the Project. Cross reference to the plans or specifications as needed to identify the use for which the item or component is intended.
- (f) The Contractor shall check the Submittals for compliance with the requirements of the Contract Documents. The Contractor shall clearly note in writing any and all items which deviate from the requirements of the Contract Documents. Reasons for deviation shall be included with the Submittal. The Contractor shall be solely responsible for checking all dimensions and coordinating all materials and trades to ensure that the components or products proposed, individually or in combination, will fit in the space available and that they will be compatible with other components or products provided.
- (g) After checking each submittal, the Contractor shall stamp each sheet of the Submittal with the Contractor's review stamp. Data submitted in a bound volume or on one sheet printed on two sides, may be stamped on the front of the first sheet only. The Contractor's review stamp shall be worded as follows:

The equipment and material shown and marked in this submittal is that proposed to be incorporated into this Project, is in compliance with the Contract drawings and specifications unless otherwise shown in bold face type or lettering and listed on a page or pages headed "DEPARTURES FROM DRAWINGS AND SPECIFICATIONS", and can be installed in the allocated spaces.

Reviewed by _____ Date _____

The person signing the review stamp shall be the person designated in writing by the Contractor as having that authority. (A copy of such designation shall be forwarded to the A/E prior to or with the first Submittal.) The signature on the stamped review statement shall be handwritten in ink, or in the case of electronic submittals, electronically signed in accordance with § 59.1-479 et seq. of the Code of Virginia. Stamped signatures are not acceptable.

- (h) The Contractor shall forward all Submittals sufficiently in advance of construction requirements to allow reasonable time for checking, correcting, resubmitting and rechecking.
- (i) If a Submittal indicates a departure from the Contract requirements, the Architect/Engineer may reject the Submittal or, if he deems it to have merit, may recommend it to the Owner, who shall approve or reject it as the Owner, in its sole discretion, sees fit. The departure from the Contract

requirements shall be further authorized by a Change Order, if a reduction or increase in the Contract Price is appropriate.

- (j) The Architect/Engineer is responsible to the Owner, but not to the Contractor, to verify that the Submittals conform to the design concept and functional requirements of the plans and specifications, that the detailed design portrayed in shop drawings and proposed equipment and materials shown in Submittals are of the quality specified and will function properly, and that the Submittals comply with the Contract Documents.
- (k) The Work shall be in accordance with approved Submittals. Approval of the Contractor's Submittals by the A/E does not relieve the Contractor from responsibility of complying with the Contract and all drawings and specifications, except as changed by Change Order.
- (l) The plans and/or specifications may indicate that the Architect/Engineer designed or detailed a portion of the plans around a particular product (most commonly a piece of equipment). Should a different product be proposed by the Contractor and accepted, all modifications, rerouting, relocations and variations required for proper installation and coordination to comply with the design concept and requirements of the Contract Documents shall be the responsibility of the Contractor and shall be made at no extra cost to the Owner. If the plans were noted as designed or detailed around a particular product and/or if a product is named when a "brand name or equal" specification has been used, this is not intended to favor or preclude the use of other products pursuant to Section 26 of these General Conditions. Rather such design merely acknowledges the reality that in many instances the Architect/Engineer must have a basis to design and detail around for dimensions and characteristics of a product or system.
- (m) Additional Submittal requirements may be shown in the specifications.

25. FEES, SERVICES AND FACILITIES

- (a) The Contractor shall obtain all permits and pay for all fees and charges necessary for temporary access and public right-of-way blockage or use, for temporary connections to utilities and for the use of property (other than the Site) for storage of materials and other purposes unless otherwise specifically stated in the Contract Documents.
- (b) Certain projects such as renovations and interior modifications of existing buildings will usually have water and electric service to the building. In those instances, water and electric power, if required for the Work under the Contract, will be furnished by the Owner subject to reasonable use by the Contractor, only to the extent and capacity of present services. The Contractor shall be responsible for providing required connections, temporary wiring, piping, etc. to these services in a safe manner and in accordance with applicable codes. All temporary wire, pipe, etc. shall be removed before the Substantial Completion inspection. Acceptance by the Contractor of the use of Owner's water and electricity constitutes a release to the Owner of all claims and of all liability to the Contractor for whatever damages which may result from power and water outages or voltage variations.
- (c) The Owner shall pay any connection charges for permanent utility connections directly to the utility Supplier. The Contractor shall coordinate such connections with the utility Supplier.

- (d) It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor, either directly or through his Subcontractors, shall provide and pay for all material, labor, tools, equipment, water, light, power, telephone and other services or facilities of every nature whatsoever necessary to execute completely and deliver the Work within the Contract Time for Completion or before the Contract Completion Date.

26. EQUALS

- (a) **Brand names:** Unless otherwise stated in the specifications, the name of a certain brand, make or manufacturer denotes the characteristics, quality, workmanship, economy of operation and suitability for the intended purpose of the article desired, but does not restrict the Contractor to the specific brand, make, or manufacturer; it is set forth to convey to the Contractor the general style, type, character and quality of the article specified.
- (b) **Equal materials, equipment or assemblies:** Whenever in these Contract Documents, a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment shall be regarded merely as a standard. Any other brand, make or manufacturer of a product, assembly or equipment which in the opinion of the Architect/Engineer is the equal of that specified, considering quality, capabilities, workmanship, configuration, economy of operation, useful life, compatibility with design of the Work, and suitability for the intended purpose, will be accepted unless rejected by the Owner as not being equal.
- (c) **Substitute materials, equipment or assemblies:** The Contractor may propose to substitute a material, product, equipment, or assembly which deviates from the requirements of the Contract Documents but which the Contractor deems will perform the same function and have equal capabilities, service life, economy of operations, and suitability for the intended purpose. The proposal must include any cost differentials proposed. The Owner will have the A/E provide an initial evaluation of such proposed substitutes and provide a recommendation on acceptability and indicate the A/E's redesign fee to incorporate the substitution in the design. If the proposed substitute is acceptable to the Owner, a Change Order will be proposed to the Contractor to accept the substitute and to deduct the cost of the A/E redesign fee and the proposed cost savings from the Contract Price. The Owner shall have the right to limit or reject substitutions at its sole discretion.
- (d) The Contractor shall be responsible for making all changes in the Work necessary to adapt and accommodate any equal or substitute product which it uses. The necessary changes shall be made at the Contractor's expense.

27. AVAILABILITY OF MATERIALS

If a brand name, product, or model number included in the Contract Documents is not available on the present market, alternate equal products or model numbers may be proposed by the Contractor through the Architect/Engineer for approval by the Owner. A letter from the manufacturer or representative of the manufacturer that states the specified brand name product or model number is no longer available is required.

28. CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the Work shall be purchased by the Contractor, or by any Subcontractor or Supplier, subject to any security interest, installment or sales contract or any other agreement or lien by which an interest is retained by the seller or is given to a secured party. The Contractor warrants that he has clear and good title to all materials and supplies which he uses in the Work or for which he accepts payment in whole or in part.

29. STANDARDS FOR MATERIALS INSTALLATION & WORKMANSHIP

- (a) Unless otherwise specifically provided in the Contract, all equipment, material, and accessories incorporated in the Work are to be new and in first class condition.
- (b) Unless specifically approved by the Owner or required by the Contract, the Contractor shall not incorporate into the Work any materials known by the industry to be hazardous to the health of building construction workers, maintenance workers, or occupants (for example asbestos or lead paint). If the Contractor becomes aware that a material required by the Contract contains asbestos or other hazardous materials, he shall notify the Owner and the Architect/Engineer immediately and shall take no further steps to acquire or install any such material without first obtaining Owner approval.
- (c) All workmanship shall be of the highest quality found in the building industry in every respect. All items of Work shall be done by craftsmen or tradesmen skilled in the particular task or activity to which they are assigned. In the acceptance or rejection of Work, no allowance will be made for lack of skill on the part of workmen. Poor or inferior workmanship (as determined by the Architect/Engineer, the Owner or other inspecting authorities) shall be removed and replaced at Contractor's expense such that the Work conforms to the highest quality standards of the trades concerned, or otherwise corrected to the satisfaction of the Architect/Engineer, the Owner, or other inspecting authority, as applicable.
- (d) Under the various sections of the plans or specifications, where specified items are supplied with the manufacturer's printed instructions, recommendations, or directions for installation, or where such instructions, recommendations, or directions are available, installation of the specified items shall be in strict accordance with the manufacturer's printed instructions unless those instructions contradict the plans or specifications, in which case the Architect/Engineer will be notified for an interpretation and decision.
- (e) Under the various sections of the plans or specifications, where reference is made to specific codes or standards governing the installation of specified items, installation shall in all cases be in strict accordance with the referenced codes and standards. Where no reference is made to specific codes or standards, installation shall conform to the generally recognized applicable standards for first-class installation of the specific item to be installed. Contractors are expected to be proficient and skilled in their respective trades and knowledgeable of the Codes and Standards of the National Fire Protection Association (NFPA), National Electric Code (NEC), Occupational Safety and Health Act (OSHA) and other codes and standards applicable to installations and associated work by his trade.

- (f) Where the manufacturer's printed instructions are not available for installation of specific items, where specific codes or standards are not referenced to govern the installation or specific items, or where there is uncertainty on the part of the Contractor concerning the installation procedures to be followed or the quality of workmanship to be maintained in the installation of specific items, the Contractor shall consult the Architect/Engineer for approval of the installation procedures or the specific standards governing the quality of workmanship the Contractor proposes to follow or maintain during the installation of the items in question.

- (g) During and/or at the completion of installation of any items, the tests designated in the plans or specifications necessary to assure proper and satisfactory functioning for its intended purpose shall be performed by the Contractor or by its Subcontractor responsible for the completed installation. All costs for such testing are to be included in the Contract Price. If required by the Contract Documents, the Contractor shall furnish prior to final inspection the manufacturers' certificates evidencing that products meet or exceed applicable performance, warranty and other requirements, and certificates that products have been properly installed and tested.

30. WARRANTY OF MATERIALS AND WORKMANSHIP

- (a) The Contractor warrants that, unless otherwise specified, all materials and equipment incorporated in the Work under the Contract shall be new, in first class condition, and in accordance with the Contract Documents. The Contractor further warrants that all workmanship shall be of the highest quality and in accordance with the Contract Documents and shall be performed by persons qualified at their respective trades.
- (b) Work not conforming to these warranties shall be considered defective.
- (c) This warranty of materials and workmanship is separate and independent from and in addition to any of the Contractor's other guarantees or obligations in the Contract or under Virginia law.

31. USE OF SITE AND REMOVAL OF DEBRIS

- (a) The Contractor shall:
 - (1) Perform the Work in such a manner as not to interrupt or interfere with the operation of any existing activity on, or in proximity to, the Site or with the Work of any other separate contractor;
 - (2) Store his apparatus, materials, supplies and equipment in such orderly fashion at the Site of the Work as will not unduly interfere with the progress of his Work or the work of any other separate contractor; and
 - (3) Place upon the Work or any part thereof only such loads as are consistent with the safety of that portion of the Work.
- (b) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to effect all cutting, filling or patching of the Work required to make the same conform to the plans and specifications, and, except with the consent of the Architect/Engineer, not to cut or otherwise alter the Work of any other separate contractor. The Contractor shall not damage or endanger any portion of the Work or Site, including existing improvements, unless called for by the Contract.
- (c) The Contractor expressly undertakes, either directly or through his Subcontractor(s), to clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the Site shall present a neat, orderly and workmanlike appearance. No such refuse, rubbish, scrap material and debris shall be left within the completed Work nor buried on the building Site, but shall be removed from the Site and properly disposed of in a licensed landfill or otherwise as required by law.
- (d) The Contractor expressly undertakes, either directly or through his Subcontractor(s), before final payment or such prior time as the Owner may require, to remove all surplus material, false Work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations and to put the Site in a neat, orderly condition; to thoroughly clean and leave reasonably dust free all finished surfaces including all equipment, piping, etc., on the interior of all buildings included in the Contract; and to clean thoroughly all glass installed under the

Contract, including the removal of all paint and mortar splatters and other defacements. If the Contractor fails to clean up at the time required herein, the Owner may do so and charge the costs incurred thereby to the Contractor in accordance with Section 10(b) of these General Conditions.

- (e) The Contractor shall have, on-site, an employee certified by the Department of Conservation and Recreation as a Responsible Land Disturber who shall be responsible for the installation, inspection and maintenance of erosion control and stormwater management measures and devices. The Contractor shall prevent Site soil erosion, the runoff of silt and/or debris carrying water from the Site, and the blowing of debris off the Site in accordance with the applicable requirements and standards of the Contract, the County of Albemarle's Water Protection Ordinance, and any Virginia water protection ordinances/codes and/or stormwater regulations. This would include covering of dumpsters during periods of precipitation to prevent any runoff to the stormwater system.

32. TEMPORARY ROADS

Temporary roads, if required, shall be established and maintained until permanent roads are accepted, then removed and the area restored to the conditions required by the Contract Documents. Crushed rock, paving and other road materials from temporary roads shall not be left on the Site unless permission is received from the Owner to bury the same at a location and depth approved by the Owner or leave in place as installed.

33. SIGNS

The Contractor may, at his option and without cost to the Owner, erect signs acceptable to the Owner on the Site for the purpose of identifying and giving directions to the job. No signs shall be erected without prior approval of the Owner as to design and location. The Contractor shall pay all fees required by Albemarle County.

34. PROTECTION OF PERSONS AND PROPERTY

- (a) The Contractor expressly undertakes, both directly and through his Subcontractors, to take every reasonable precaution at all times for the protection of all persons and property which may come on the Site or be affected by the Contractor's Work.
- (b) The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Any violation of these requirements or duties or any potential safety hazard that is brought to the attention of the Contractor by the Architect/Engineer, the Owner, or any other persons shall be immediately abated.
- (c) The provisions of all rules and regulations governing health and safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia, issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia, shall apply to all Work under this Contract.

- (d) The Contractor shall continuously maintain adequate protection of all his Work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except as may be directly and solely due to errors in the Contract Documents or caused by agents or employees of the Owner. The Contractor shall adequately protect adjacent property to prevent any damage to it or loss of use and enjoyment by its owners. The Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for protection as required by public authority, local conditions, or the Contract.
- (e) In an emergency affecting the health, safety or life of persons or of the Work, or of the adjoining property, the Contractor, without special instruction or authorization from the Architect/Engineer or the Owner, shall act, at his discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the Architect/Engineer or the Owner, he shall so act immediately, without appeal. Any additional compensation or extension of time claimed by the Contractor on account of any emergency work shall be determined as provided by Section 38 of these General Conditions.
- (f) When necessary for the proper protection of the Work, temporary heating, cooling, humidification, or de-humidification of a type approved by the Architect/Engineer must be provided by the Contractor, at the Contractor's expense, unless otherwise specified.

35. CLIMATIC CONDITIONS

The Contractor shall suspend activity on and protect any portion of the Work that may be subject to damage by climatic conditions, including but not limited to, protection from precipitation, wind (including securing material and equipment that could become airborne), and extreme temperatures.

36. PAYMENTS TO CONTRACTOR

- (a) Unless otherwise provided in the Contract, the Owner will make partial payments to the Contractor on the basis of a duly certified and approved Schedule of Values and Certificate for Payment, Form AC-12, showing the estimate of the Work performed during the preceding calendar month or work period, as recommended by the Architect/Engineer. When evaluating the Contractor's Form AC-12, the Architect/Engineer will consider the value of the Work in place, the value of approved and properly stored materials, the status of the Work on the critical path with regard to the Time for Completion, and the estimated value of the Work necessary to achieve Final Completion. The Architect/Engineer will schedule a monthly pay meeting. The Contractor will submit his monthly estimate of Work completed on Form AC-12 so that it is received by the Architect/Engineer and the Owner's Project Manager at least two work days prior to the date scheduled by the Architect/Engineer for the monthly pay meeting. The Owner will review the estimate with the Architect/Engineer and the Contractor at the monthly pay meeting, which shall be considered the receipt date, and may approve any or all of the estimate of Work for payment. In preparing estimates, the material delivered to the Site and preparatory Work done shall be taken into consideration, if properly documented as required by Section 20 of these General Conditions, or as may be required by the Architect/Engineer so that quantities may be verified. In addition to material delivered to the Site, material such as large pieces of equipment and items purchased specifically for the Project, but stored off the Site within the Commonwealth of Virginia, may be considered for payment, provided

all of the following are accomplished prior to the submission of the monthly payment request in which payment for such materials is requested:

- (1) The Contractor must notify the Owner in writing, at least ten (10) days prior to the submission of the payment request, through the Architect/Engineer, that specific items will be stored off Site in a designated, secured place within the Commonwealth of Virginia. The Schedule of Values must be detailed to indicate separately both the value of the material and the labor/installation for trades requesting payment for stored materials. By giving such notification and by requesting payment for material stored off Site, the Contractor warrants that the storage location is safe and suitable for the type of material stored and that the materials are identified as being the property of the Contractor, and agrees that loss of materials stored off the Site shall not relieve the Contractor of the obligation to timely furnish these types and quantities of materials for the Project and meet the Time for Completion or Contract Completion Date, subject to Section 42(b) of these General Conditions. If the storage location is more than 20 miles from the Site, the Contractor may be required to reimburse the Owner for the cost incurred for travel to the storage location to verify the Contractor's request for payment for materials stored off Site.
- (2) Such notification, as well as the payment request, shall:
 - (a) itemize the quantity of such materials and document with invoices showing the cost of said materials;
 - (b) indicate the identification markings used on the materials, which shall clearly reference the materials to the particular project;
 - (c) identify the specific location of the materials, which must be within reasonable proximity to the Site and within the Commonwealth of Virginia;
 - (d) include a letter from the Contractor's Surety which confirms that the Surety on the Performance Bond and the Labor and Material Payment Bond has been notified of the request for payment of materials stored off the Site and agrees that the materials are covered by the bond; and
 - (e) include a certificate of all-risk builder's risk insurance in an amount not less than the fair market value of the materials, which shall name the Owner and the Contractor as co-insured.
- (3) The Architect/Engineer shall indicate, in writing, to the Owner that Submittals for such materials have been reviewed and meet the requirements of the Contract Documents, that the stored materials meet the requirement of the plans and specifications, and that such materials conform to the approved Submittals. Should the A/E deem it necessary to visit the storage site to make such review, the Contractor shall bear the costs incurred therewith.
- (4) The Owner, through the Architect/Engineer, shall notify the Contractor in writing of its agreement to prepayment for materials.

- (5) The Contractor shall notify the Owner in writing, through the Architect/Engineer, when the materials are to be transferred to the Site and when the materials are received at the Site.
- (b) Payment will not be made for materials or equipment stored on or off the Site which are not scheduled for incorporation into the Work within the six months following submission of the request for payment, unless the Contractor has the prior consent of the Owner, which consent may be granted or withheld by the Owner in its discretion if, in the opinion of the Owner, it is not necessary to procure the materials more than six months in advance of use to assure their availability when needed.
- (c) In making such partial payments, five percent (5%) of each payment to the Contractor shall be retained until Final Completion and acceptance of all Work covered by the Contract, unless otherwise provided by any law, regulation or program of the federal government. Such retainage shall be held to assure faithful performance of the Contract and may also be used as a fund to deduct amounts due to or claimed by the Owner, including, but not limited to, payment to the Owner of all monies due for deductive change orders, credits, uncorrected Defective Work, interest, damages, and the like. (§2.2-4333 of the Code of Virginia)
- (d) All material and Work for which partial payments are made shall thereupon become the sole property of the Owner, but this provision shall not relieve the Contractor from the sole responsibility for all materials and Work, including those for which payment has been made, or for the restoration of any damaged materials or Work. Nor shall this provision serve as a waiver of the right of the Owner to require the fulfillment of all of the terms and conditions of the Contract.
- (e) The final payment, which shall include the retainage, less any amounts due to or claimed by the Owner, shall not become due until the Architect/Engineer and the Owner agree that Final Completion has been achieved and until the Contractor shall deliver to the Owner through the Architect/Engineer a Certificate of Completion by the Contractor (Form AC-13.2) and an Affidavit of Payment of Claims (Form AC-13), stating that all Subcontractors and Suppliers of either labor or materials have been paid all sums claimed by them for Work performed or materials furnished in connection with this Project less retainage. Amounts due the Owner which may be withheld from the final payment may include, but are not limited to, amounts due pursuant to Section 3(i), Section 16(a)-(d), Section 31(d), costs incurred to repair or replace Defective Work, costs incurred as a result of the Contractor's negligent acts or omissions or omissions of those for whom the Contractor is responsible, delay damages under Section 42(h), and any liquidated or actual damages. If all Subcontractors and Suppliers of labor and materials have not been paid the full amount claimed by them, the Contractor shall list each to which an agreed amount of money is due or which has a claim in dispute. With respect to all such Subcontractors and Suppliers, the Contractor shall provide to the Owner, along with the Affidavit of Payment of Claims (Form AC-13), an affidavit from each such Subcontractor and Supplier stating the amount of their subcontract or supply contract, the percentage of completion, the amounts paid to them by the Contractor and the dates of payment, the amount of money still due if any, any interest due the Subcontractor or Supplier pursuant to Section 37(b) below, and whether satisfactory arrangements have been made for the payment of said amounts. If no agreement can be reached between the Contractor and one or more Subcontractors or Suppliers as to the amounts owed to the Subcontractors or Suppliers, the Owner may, in its discretion, pay such portion of the monies due to the Contractor which is claimed by the Subcontractor or Supplier into a Virginia Court or Federal Court sitting in Virginia, in the manner provided by law. Said payment into court shall be deemed a payment to the Contractor. Nothing in this Section shall be construed as creating any obligation or contractor relationship between the Owner and any Subcontractor or Supplier, and the

Owner shall not be liable to any Subcontractor or Supplier on account of any failure or delay of the Owner in complying with the terms hereof.

- (f) Upon successful completion of the final inspection and all Work required by the Contract, including but not limited to the delivery of As-Built drawings, equipment manuals, written warranties, acceptance of the Work by the Owner and the delivery of the affidavits required in Section 36(e) of these General Conditions, the Architect/Engineer shall deliver the written Certificate of Completion by the Architect/Engineer (Form AC-13.1) to the Owner, with a copy to the Contractor, stating the entire amount of Work performed and compensation earned by the Contractor, including extra work and compensation therefor. The Owner may accept the Work for occupancy or use while asserting claims against the Contractor; disputing the amount of compensation due to the Contractor; disputing the quality of the Work, its completion, or its compliance with the Contract Documents; or any other reason.
- (g) Unless there is a dispute about the compensation due to the Contractor, Defective Work, quality of the Work, compliance with the Contract Documents, completion itself, claims by the Owner, other matters in contention between the parties, or unless monies are withheld pursuant to Albemarle County's Debt Setoff Program, within thirty (30) days after receipt and acceptance of the Schedule of Values and Certificate for Payment (Form AC-12) in proper form by the Architect/Engineer at the monthly pay meeting, which shall be considered the receipt date, the Owner shall pay to the Contractor the amount approved by the Architect/Engineer, less all prior payments and advances whatsoever to or for the account of the Contractor. In the case of final payment, the completed Affidavit of Payment of Claims (Form AC-13), the Certificate of Completion by the Contractor (Form AC-13.2) and the Certificate of Completion by the Architect/Engineer (Form AC-13.1) shall accompany the final Schedule of Values and Certificate for Payment (Form AC-12) which is forwarded to the Owner for payment. The date on which payment is due shall be referred to as the Payment Date. In the event of disputes, payment shall be mailed on or before the Payment Date for amounts and Work not in dispute, subject to any set offs claimed by the Owner, provided however, in instances where further appropriations are required by the County of Albemarle or where the issuance of further bonds is required, in which case, payment shall be made within thirty (30) days after the effective date of such appropriation or within thirty (30) days after the receipt of bond proceeds by the Owner. All prior estimates and payments including those relating to extra Work may be connected and adjusted in any payment and shall be corrected and adjusted in the final payment. In the event that any request for payment by the Contractor contains a defect or impropriety, the Owner shall notify the Contractor of any defect or impropriety which would prevent payment by the Payment Date, within five (5) days after receipt of the Schedule of Values and Certificate for Payment (Form AC-12) by the Owner from the Architect/Engineer.
- (h) Interest shall accrue on all amounts owed by the Owner to the Contractor which remain unpaid seven (7) days following the Payment Date. Said interest shall accrue at the discounted ninety-day U.S. Treasury bill rate as established by the Weekly Auction and as reported in the publication entitled The Wall Street Journal on the weekday following each such Weekly Auction. During the period of time when the amounts due to the Contractor remain unpaid following the seventh (7th) day after the Payment Date, the interest accruing shall fluctuate on a weekly basis and shall be that established by the immediately prior Weekly Auction. It shall be the responsibility of the Contractor to gather and substantiate the applicable weekly interest rates to the satisfaction of the Owner and to calculate to the satisfaction of the Owner the interest due. In no event shall the rate of interest charge exceed the rate of interest charged pursuant to §58.1-1812 of the Code of Virginia. No interest shall accrue on

retainage or when payment is delayed because of disagreement between the Owner and the Contractor regarding the quantity, quality or timeliness of the Work, including, but not limited to, compliance with Contract Documents or the accuracy of any Request for Payment received. This exception to the accrual of interest stated in the preceding sentence shall apply only to that portion of a delayed payment which is actually the subject of such a disagreement and shall apply only for the duration of such disagreement. Nothing contained herein shall be interpreted, however, to prevent the withholding of retainage to assure faithful performance of the Contract. These same provisions relating to payment of interest to the Contractor shall apply also to the computation and accrual of interest on any amounts due from the Contractor to the Owner for deductive change orders and to amounts due on any claims by the Owner. The date of mailing of any payment by the U.S. Mail is deemed to be the date of payment to the addressee.

- (i) The acceptance by the Contractor of the final payment shall be and operate as a release to the Owner of all claims by the Contractor, its Subcontractors and Suppliers, and of all liability to the Contractor whatever, including liability for all things done or furnished in connection with this Work, except for things done or furnished which are the subject of unresolved claims for which the Contractor has filed a timely written notice of intent, provided a claim is submitted no later than sixty (60) days after final payment. Acceptance of any interest payment by the Contractor shall be a release of the Owner from claims by the Contractor for late payment.
- (j) No certificate for payment issued by the Architect/Engineer, and no payment, final or otherwise, no certificate of completion, nor partial or entire use or occupancy of the Work by the Owner, shall be an acceptance of any Work or materials not in accordance with the Contract, nor shall the same relieve the Contractor of responsibility for faulty materials or Defective Work or operate to release the Contractor or his Surety from any obligation under the Contract, the Standard Performance Bond and the Standard Labor and Material Payment Bond.

37. PAYMENTS BY CONTRACTOR (§2.2-4354, Code of Virginia)

Under §2.2-4354, Code of Virginia, the Contractor is obligated to:

- (a) Within seven (7) days after receipt of amounts paid to the Contractor by the Owner for Work performed by the Subcontractor or Supplier under this Contract,
 - (1) Pay the Subcontractor or Supplier for the proportionate share of the total payment received from the Owner attributable to the Work performed by the Subcontractor or the materials furnished by the Supplier under this Contract; or
 - (2) Notify the Subcontractor or Supplier, in writing, of his intention to withhold all or a part of the Subcontractor or Supplier's payment with the reason for nonpayment;
- (b) Pay interest to the Subcontractor or Supplier on all amounts owed by the Contractor that remain unpaid after seven (7) days following receipt by the Contractor of payment from the Owner for Work performed by the Subcontractor or materials furnished by the Supplier under this contract, except for amounts withheld as allowed under subsection (a)(2) of this Section.

- (c) Include in each of his subcontracts a provision requiring each Subcontractor to include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor. Each Subcontractor shall include with its invoice to, or request for payment from, the Contractor, a certification that Subcontractor has paid each of its suppliers and lower tier subcontractors their proportionate share of previous payments received from the Contractor attributable to the Work performed or the materials furnished by it under this Contract.

The Contractor's obligation to pay interest to the Subcontractor or Supplier pursuant to subsection (b) of this Section is not an obligation of the Owner. A modification to this Contract shall not be made for the purpose of providing reimbursement for such interest charge. A Contractor's cost reimbursement claim shall not include any amount for reimbursement of such interest charge.

38. CHANGES IN THE WORK

- (a) The Owner may at any time, by written order utilizing the County of Albemarle Change Order Form AC-11, and without notice to the sureties, make changes in the Work which are within the general scope of the contract except that no change will be made which will increase the total Contract Price to an amount more than twenty-five percent (25%) in excess of the original Contract Price without notice to sureties. The Owner, at its discretion, may require the Contractor to provide evidence of current surety coverage based on approved changes in the work that result in a change in the total contract amount. At the time of the Preconstruction Meeting described in Section 49(b), the Contractor and the Owner shall advise each other of their designees authorized to accept and/or approve changes to the Contract Price and of any limits to each designee's authority. Should any designee or limits of authority change during the time this Contract is in effect, the Contractor or Owner shall give written notice to the other within seven (7) calendar days, utilizing the procedures set forth in these General Conditions. The Contractor agrees and understands that the authority of the Owner's designee is limited by Virginia Code §2.2-4309 and any other applicable statute.

If the Contractor claims that any instructions given to him by the Architect/Engineer or by the Owner, by drawings or otherwise, involve extra Work which increases the scope of the Contract, then, except in emergencies endangering life or property, he shall give the Architect/Engineer and the Owner written notice thereof before proceeding to execute the Work. Said notice shall be given promptly enough to avoid delaying the Work and in no instance later than fourteen (14) days after the receipt of such instructions. Should it not be immediately clear to the Contractor that the change involves extra Work outside the scope of the Contract, written notice shall be sufficient if given as soon as possible after such realization, but in no event later than fourteen (14) days after the start of such Work. If the Owner agrees, a Change Order shall be issued as provided herein, and any additional compensation shall be determined by one of the four (4) methods provided herein, as selected by the Owner. Except as otherwise specifically provided, no claims for extra Work shall be allowed unless timely notice, as required by this Section, is given by the Contractor and unless such Work is performed pursuant to written Change Order. In making any change, the charge or credit for the change shall be determined by one of the following methods as selected by the Owner:

- (1) **Fixed Price:** By a mutually agreed fixed amount change to the Contract Price and/or time allowed for completion of the Work. By using the Estimate for Change Order Forms GC-1, SC-1, and SS-1, respectively, the Change Order shall be substantiated by documentation

itemizing the estimated quantities and actual costs of all labor, materials and equipment required as well as any markup used. The price change shall include the Contractor's overhead and profit. See Subsections (d) and (e) below.

- (2) **Unit Price:** By using unit prices and calculating the number of net units of Work in each part of the Work which is changed, either as the Work progresses or before Work on the change commences, and by then multiplying the calculated number of units by the applicable unit price set forth in the Contract or multiplying by a mutually agreed unit price if none was provided in the Contract. No additional percentage markup for overhead or profit shall be added to the unit prices.
- (3) **Unilateral:** If the Owner and Contractor are unable to agree that an item of Work or service constitutes a change, or that Contractor is entitled to additional compensation and/or an extension of time for such item of Work or service, the Contractor, upon receipt of a Unilateral Change Order, signed by the Owner, will promptly proceed with and expeditiously perform and/or supply the item of Work or service. If the parties are unable to agree on the amount of adjustment or schedule, the Owner will provide written notification to the Contractor of the adjustment the Owner considers appropriate. Such adjustment will be effective subject to Contractor's right to submit a claim as provided in Section 46. Any claim for an adjustment of compensation or schedule, or in opposition to an adjustment imposed by the Owner, will be submitted to the Owner in writing within seven (7) days of commencement of the event giving rise to such claim. The Contractor will submit to the Owner, in writing, the amount of the claim with supporting data within thirty (30) days of completion of the services or termination of the event for which it claims an adjustment.
- (4) **Cost Reimbursement (Time and Materials):** In order to allow performance of services to proceed in a timely manner, the Owner may issue a written order for the Contractor to proceed with a change for additional work or service in anticipation of subsequently negotiating an agreeable adjustment of the Contractor's compensation and/or schedule. Upon completion of the Work, the Contractor, by using Estimate for Change Order Forms GC-1, SC-1, and SS-1, respectively, will present to the Owner, an accurate, itemized account of the cost of the change in the Work, including, but not limited to, the costs of labor, materials, equipment, and supplies; and to annotate a copy of the Project schedule to accurately show the status of the Work at the time this initial written order is issued, to show the start and finish of the changed Work, and the status of the Work when the changed Work is completed.

Except as otherwise may be agreed to in writing by the Owner, such costs shall not exceed those prevailing for the trades or crafts, materials, and equipment in the locality of the Project, may include only those items listed as allowable in Subsection 38(e), and shall not include any of the costs listed as not allowable in Subsection 38(f). The Owner shall be permitted, on a daily basis, to verify such records and may require such additional records as are necessary to determine the cost of the change to the Work.

Within fourteen (14) days of the conclusion of such ordered Work, the Contractor and the Owner shall arrive at a cost for the Change Order Request, based on the records kept and the Contractor's allowance for overhead and profit as set forth in Subsections (d), (e) and (f) below, and such costs shall be incorporated into a Change Order. If agreement on the cost of

the changed Work cannot be reached within the fourteen (14) days allotted, the Contractor may file a claim for the disputed amount as provided for in Section 46.

- (b) The Contractor shall review any Owner requested or directed change and shall respond in writing within fourteen (14) calendar days after receipt of the proposed change (or such other reasonable time as the Owner may direct), stating the effect of the proposed change upon his Work, including any increase or decrease in the Contract time and Price. The Contractor shall furnish to the Owner an itemized breakdown of the quantities and prices used in computing the proposed change in Contract Price.

The Owner shall review the Contractor's proposal and respond to the Contractor within thirty (30) days of receipt. If a change to the Contract Price and time for performance are agreed upon, both parties shall sign the Change Order. If the price and time are not agreed upon, the Owner may direct the Contractor to proceed under Subsection 38(a)(3) or 38(a)(4). Changes to the Contract time and/or Price shall be effective when signed by both parties, with the exception of a Unilateral Change Order that is only signed by the Owner.

- (c) In figuring changes, any instructions for measurement of quantities set forth in the Contract shall be followed.
- (d) The percentage for overhead and profit to be used in calculating both additive and deductive changes in the Work (other than changes covered by unit prices) shall not exceed the percentages for each category listed below. Said percentages for overhead and profit shall be applied only on the cost of the changed Work (i.e. difference in cost between original and revised Work):
 - (1) If a Subcontractor does all or part of the changed Work, the Subcontractor's markup for overhead and profit on the Work it performs shall be a maximum of ten percent (10%). The Contractor's markup on the subcontractor's price shall be a maximum of ten percent (10%).
 - (2) If the Contractor does all or part of the changed Work, its markup for overhead and profit on the changed Work it performs shall be a maximum of ten percent (10%).
 - (3) If a Sub-subcontractor at any tier does all or part of the changed Work, the Sub-subcontractor's markup on that Work shall be a maximum of ten percent (10%). The markup of a sub-subcontractor's Work by the Contractor and all intervening tiers of Subcontractors shall not exceed a total of ten percent (10%).
 - (4) Where Work is deleted from the Contract prior to commencement of that Work without substitution of other similar Work, one hundred percent (100%) of the Contract Price attributable to that Work shall be deducted from the Contract Price including applicable overhead costs and profit. However, in the event that material Submittals have been approved and orders placed for said materials, a lesser amount, but in no case less than eighty percent (80%) of the Contract Price attributable to that Work, shall be deducted from the Contract Price. The credit to the Owner for reduced premiums on labor and material bonds and performance bonds shall in all cases be one hundred percent (100%).

(e) Allowable costs for changes in the Work may include the following:

- (1) Labor costs for employees directly employed in the change in the Work, including actual salaries and wages plus the cost of payroll charges and fringe benefits and overtime premiums, if such premiums are explicitly authorized by the Owner. "Billable" or "loaded" labor or wage rates will not be accepted.
- (2) Materials incorporated into the change to the Work, including costs of transportation and storage, if applicable. If applicable, all cash discounts shall accrue to the Contractor, unless the Owner deposits funds with the Contractor to make such payments, and all trade discounts, rebates, refunds, and returns from the sale of surplus materials shall accrue to the Owner.
- (3) Equipment incorporated in the changed Work or equipment used directly in accomplishing the Work. If rented expressly for accomplishing the change in the Work, the cost shall be the rental rate according to the terms of the rental agreement, which the Owner shall have the right to approve. If owned by the Contractor, the costs shall be a reasonable price based upon the life expectancy of the equipment and the purchase price of the equipment. If applicable, transportation costs may be included.
- (4) Costs of increases in premiums for the Standard Labor and Material Payment Bond and the Standard Performance Bond, provided coverage for the cost of the change in the Work results in such increased costs. At the Owner's request, the Contractor shall provide proof of his notification to the Surety of the change in the Work and of the Surety's agreement to include such change in its coverage. The cost of the increase in premium shall be an allowable cost but shall not be marked up.
- (5) Contractor and Subcontractor overhead costs as set forth in Subsection (d) markups above.
- (6) If the change in the Work also changes the Time for Completion or Contract Completion Date by adding days to perform the Work, an itemized accounting of the following Site direct overhead expenses for the change to the time may be considered as allowable costs for compensation in addition to those shown above: The Site superintendent's prorata salary, temporary Site office trailer expense, and temporary Site utilities including basic telephone service, electricity, heat, water, and sanitary/toilet facilities. All other direct and indirect overhead expenses are considered covered by and included in the Subsection (d) markups above.
- (7) Any other costs directly attributable to the change in the Work with the exception of those set forth below.

(f) Allowable costs for changes in the Work shall not include the following:

- (1) Costs due to the negligence of the Contractor, any Subcontractor, Supplier, their employees or other persons for whom the Contractor is responsible, including, but not limited to, costs for the correction of Defective Work, for improper disposal of material, for equipment wrongly supplied, for delay in performing the Work, or for delay in obtaining materials or equipment.

- (2) Home office expenses including payroll costs for the Contractor's officers, executives, administrators, project managers, accountants, counsel, engineers, timekeepers, estimators, clerks, and other similar administrative personnel employed by the Contractor, whether at the Site or in the Contractor's principal or branch office for general administration of the Work. These costs are deemed overhead included in the percentage markups allowable in Subsection (d) above.
 - (3) Home and field office expenses not itemized in Subsection 38(e)(6) above. Such items include, but are not limited to, expenses of Contractor's home and branch offices, Contractor's capital expenses, interest on Contractor's capital used for the Work, charges for delinquent payments, small tools, incidental job costs, meals, rent, utilities, telephone and office equipment, and other general overhead expenses.
- (g) All Change Orders must state that the Contract Time for Completion or Contract Completion Date is not changed or is either increased or decreased by a specific number of days. The old Time for Completion and, if changed, the new Time for Completion must be stated.

If the Contractor requests an extension to the Time for Completion or a later Contract Completion Date, he must provide written justification for the extension to the Architect/Engineer and to the Owner. The written justification must demonstrate an anticipated actual increase in the time required to complete the Work beyond that allowed by the Contract as adjusted by prior change orders or amendments to the Contract, not just an increase or decrease in the time needed to complete some portion of the total Work. When a CPM schedule is required by the Contract, no extension to the Time for Completion or Contract Completion Date shall be allowed unless, and then only to the extent that, the additional or changed Work increases the length of the critical path beyond the Time for Completion or Contract Completion Date. If approved, the increase in time required to complete the Work shall be added to the Time for Completion or Contract Completion Date.

The Owner may decrease, by Change Order, the Time for Completion or Contract Completion Date when an Owner-requested deletion from the Work results in a decrease in the actual time required to complete the Work as demonstrable on the Bar Graph Schedule or on the CPM Schedule, whichever is appropriate. The Contractor may submit a request to decrease, by Change Order, the Time for Completion or Contract Completion Date under the procedures and subject to the considerations set forth in Section 19(g). No request for such decrease shall be considered for approval unless the proposed shorter schedule is otherwise acceptable under Sections 19(b) or (c), whichever is applicable. The Change Order decreasing the Time for Completion or changing the Contract Completion Date must be signed by both the Owner and the Contractor.

With the exception of Change Orders under Subsection 38(a)(4), which shall arrive at a change to the Contract Price and any change to time using the procedures set forth therein, each Change Order shall include all time and monetary impacts of the change, whether the Change Order is considered alone or with all other changes during the course of the Project. Failure to include a change to time and Contract Price in Section 38(a)(1) or (2) Change Orders shall waive any change to the time and Contract Price unless the parties mutually agree in writing to postpone a determination of the change to time and price resulting from the Change Order. Such a determination may be postponed not more than forty-five (45) days to give the Contractor an opportunity to demonstrate a change in the time and price needed to complete the Work. During any such postponement, the Work shall proceed, unless the Owner agrees otherwise.

If at any time there is a delay in the critical path of the Work due to postponement, due to the Contractor's efforts to justify an extension of the time or an increase in the Contract Price, or due to the Contractor's refusal to proceed with any of the Work, pending agreement on a change in time or price, such delay and any Contractor costs resulting from it shall not serve as the basis for the extension of the Time for Completion or Contract Completion Date or for an increase in the Contract Price.

- (h) The acceptance by the Contractor of any payment made by the Owner under a Change Order shall be and operate as a release to the Owner of all claims by the Contractor and of all liability owing to the Contractor for all things done or furnished in connection with the Work described in the Change Order. The execution of any Change Order by the Owner shall not be an acceptance of any Work or materials not in accordance with the Contract Documents, nor shall it relieve the Contractor of responsibility for faulty materials or workmanship or operate to release the Contractor or his surety from any obligation arising under the Contract or the Standard Performance Bond or Standard Labor and Material Payment Bond.
- (i) Payments will not be made for any Work, labor or materials on a fixed price, unit price or Subsection 38(a)(4) basis until the Contractor has furnished the Owner documents, certified as true and correct by an authorized officer or agent of the Contractor, evidencing the cost of such Work, labor and materials. The Owner may require any or all of the following documentation to be provided by the Contractor:
 - (1) certified payroll records showing the name, classification, date, daily hours, total hours, rate, and extension for each laborer, foreman, supervisor or other worker;
 - (2) equipment type & model, dates, daily hours, total hours, rental rate or other specified rate, and extension for each unit of equipment;
 - (3) invoices for materials showing quantities, prices, and extensions;
 - (4) daily records of waste materials removed from the Site and/or fill materials imported to the Site;
 - (5) certified measurements of over excavations, piling installed and similar work; and/or
 - (6) transportation records for materials, including prices, loads, and extensions.

Requests for payment shall be accompanied and supported by invoices for all materials used and for all transportation charges claimed. If materials come from the Contractor's own stock, then an affidavit may be furnished, in lieu of invoices, certifying quantities, prices, etc. to support the actual cost.

39. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT

If the Work should be stopped under an order of any court or other public authority for a period of ninety (90) days through no fault of the Contractor or anyone employed by him, or if the Owner should fail to pay to the Contractor within sixty (60) days any sum certified by the Architect/Engineer when no dispute

exists as to the sum due or any provision of the Contract, then the Contractor may, upon ten (10) calendar days written notice to the Owner and the Architect/Engineer, stop Work or terminate the contract and recover from the Owner payment for the cost of the Work actually performed, together with overhead and profit thereon, but profit on the Work performed shall be recovered only to the extent that the Contractor can demonstrate that he would have had profit on the entire Contract if he had completed the Work. The Contractor may not receive profit or any other type of compensation for parts of the Work not performed. The Contractor may recover the reasonable cost of physically closing down the Site, but no other costs of termination. The Owner may offset any claims it may have against the Contractor against the amounts due to the Contractor. In no event shall termination of the Contract by the Contractor terminate the obligations of the Contractor's surety on its payment and performance bonds.

40. OWNER'S RIGHT TO STOP WORK OR TERMINATE THE CONTRACT FOR CAUSE

- (a) If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, the Owner may stop work or terminate the Contract. If the Contractor should refuse or should repeatedly fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials and equipment, or if he should fail to make prompt payment to Subcontractors or Suppliers of material or labor, or if he should disregard laws, ordinances or the written instructions of the Architect/Engineer or the Owner, or otherwise be in substantial violation of any provision of the Contract, then the Owner may stop work or terminate the Contract.
- (b) Prior to termination of the Contract, the Owner shall give the Contractor and his surety ten (10) calendar days written notice pursuant to Section 1 ("Notice") of these General Conditions, during which the Contractor and/or his surety may rectify the basis for the notice. If rectified to the satisfaction of the Owner within said ten (10) days, the Owner may rescind its notice of termination. If not, the termination for cause shall become effective at the end of the ten (10) day notice period. In the alternative, the Owner may, in writing, postpone the effective date of the termination for cause, at its sole discretion, if it should receive reassurances from the Contractor and/or its surety that the basis for the termination will be remedied in a time and manner which the Owner finds acceptable. If at any time after such postponement, the Owner determines that Contractor and/or its surety has not or is not likely to rectify the causes of termination in an acceptable manner or within the time allowed, then the Owner may immediately terminate the Contract for cause, without the necessity of further ten (10) day notice, by notifying the Contractor and his surety in writing of the termination. In no event shall termination for cause terminate the obligations of the Contractor's surety on its payment and performance bonds.
- (c) Upon termination of the Contract, the Owner shall take possession of the Site and of all materials, tools and equipment thereon and finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment. If the expense of finishing the Work, including compensation for additional managerial and administrative services, shall exceed the unpaid balance of the Contract Price, the Contractor shall pay the difference to the Owner, together with any other expenses of terminating the Contract and having it completed by others.
- (d) If it should be judicially determined that the Owner improperly terminated this Contract for cause, then the termination shall be deemed to be a termination for the convenience of the Owner.

- (e) Termination of the Contract under this Section is in addition to and without prejudice to any other right or remedy of the Owner. Any actions by the Owner permitted herein shall not be deemed a waiver of any other right or remedy of the Owner under the Contract or under the law. The Owner may offset any claims it may have against the Contractor against the amounts due to the Contractor. The provisions of this Section shall survive termination of the Contract.

41. TERMINATION BY OWNER FOR CONVENIENCE

- (a) Owner may terminate this Contract, in whole or in part, at any time without cause upon giving the Contractor written notice of such termination pursuant to Section 1 (“Notice”) of these General Conditions. Upon such termination, the Contractor shall immediately cease Work and remove from the Site all of its labor forces and such of its materials as Owner elects not to purchase or to assume in the manner hereinafter provided. Upon such termination, the Contractor shall take such steps as Owner may require to assign to the Owner the Contractor’s interest in all Subcontracts and purchase orders designated by Owner. After all such steps have been taken to Owner’s satisfaction, the Contractor shall receive as full compensation for termination and assignment the following:
 - (1) All amounts then otherwise due under the terms of this Contract;
 - (2) Amounts due for Work performed in accordance with the Contract subsequent to the latest approved Schedule of Values and Certificate for Payment (Form AC-12) through the date of termination;
 - (3) Reasonable compensation for the actual cost of demobilization incurred by the Contractor as a direct result of such termination. The Contractor shall not be entitled to any compensation or damages for lost profits or for any other type of contractual compensation or damages other than those provided by the preceding sentence. Upon payment of the foregoing, Owner shall have no further obligations to Contractor of any nature.
- (b) In no event shall termination for the convenience of the Owner terminate the obligations of the Contractor’s surety on its payment and performance bonds.

42. DAMAGES FOR DELAYS; EXTENSION OF TIME

- (a) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the Owner, its agents or employees or any separate independent contractor of the Owner, and the act or omission is the result of or is necessitated by causes outside the Owner’s control; or if the Contractor is delayed by strikes, fires, unusual delays in transportation or unavoidable casualties, or other causes outside the Owner’s or Contractor’s control, the Contractor shall give the Owner and Architect/Engineer written notice within five (5) days of the inception of the delay. The Owner shall extend the time for Substantial Completion or Final Completion, as the case may be, for the length of time that the Substantial Completion or Final Completion of the Work was actually delayed thereby, and the Contractor shall not be charged with liquidated or actual damages for delay during the period of such extension nor shall the Contractor be due compensation or damages of any kind, under any theory of law, as a result of such delay, the impact of such delay, or acceleration of Work

as a result of such delay. In the event a CPM schedule is required by the Contract, no extension of the time allowed for Substantial Completion shall be granted unless the Contractor demonstrates a delay in the critical path of the approved CPM schedule or approved bar graph schedule.

- (b) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the Owner, its agents or employees, due to causes within their control, or delayed by the Owner's separate, independent contractors, when such delay results from causes within the Owner's control, and the Contractor intends to seek additional compensation for damages, if any, caused by the delay, the Contractor shall inform the Owner and the Architect/Engineer immediately at the time of the occurrence giving rise to the delay by the fastest means available and shall give written notice no later than five (5) days after inception of the delay. The Contractor's notice to the Owner shall specify the nature of the delay claimed by the Contractor, the cause of the delay and the impact of the delay on the Contractor's Work schedule. The Owner shall then have five (5) days to respond to the Contractor's notice with a resolution, remedy or direction to alleviate the delay or with a notice rejecting the claim for delay alleged to be caused by the Owner or parties for whom the Owner is responsible. If the issue is not then resolved, the Contractor may submit a request for Change Order in accordance with Section 38 or submit a claim as provided for in Section 46. The Contractor shall only be entitled to additional compensation if the delay was unreasonable and was caused solely by acts or omissions of the Owner, its agents or employees, due to causes within their control, or was caused by the Owner's separate, independent contractor, when such delay resulted solely from causes within the Owner's control.
- (c) The Contractor shall not be entitled to an extension of the Time for Completion or Contract Completion Date or to any additional compensation for delays caused by acts or omissions of the Contractor due to causes within his control, including, but not limited to, delays resulting from Defective Work including workmanship and/or materials, from rejected work which must be corrected before dependent work can proceed, from Defective Work or rejected work for which corrective action must be determined before like work can proceed, or from incomplete, incorrect or unacceptable submittals or samples.
- (d) No extension of time or additional compensation, if applicable, will be granted for any delay unless the claimed delay directly affects the critical path of the approved CPM schedule or the schedule shown on the approved bar graph schedule, whichever is applicable, and any float has been consumed. No extension of time or additional compensation shall be given for a delay if the Contractor failed to give notice in the manner and within the time prescribed in Subsections (a) or (b) above, whichever applies. Furthermore, no extension of time or additional compensation shall be given for any delay unless a claim therefor is made in writing to the Owner, with a copy to the Architect/Engineer, within twenty (20) days of the end of the delay. The claim shall state the cause of the delay, the number of days of extension requested and any compensation requested by the Contractor. The Contractor shall report the termination of the delay to the Owner and Architect/Engineer not less than ten (10) days after such termination. Failure to give notice of either the inception or the termination of the cause of delay or failure to present a claim for extension of time and/or monetary compensation within the times prescribed shall constitute a waiver of any claim for extension or additional compensation based upon that cause.
- (e) Requests for compensation for delays pursuant to Subsection (b) above must be substantiated by itemized data and records clearly showing that the Work delayed was on the critical path of the **approved** CPM schedule or on the sequence of Work on the **approved** bar graph schedule, as

modified, and that the additional costs incurred by the Contractor are directly attributable to the delay in the Work claimed. Furthermore, compensation for delay shall be calculated from the contractual Time for Completion or Contract Completion Date, as adjusted by Change Order, and shall not be calculated based on any early completion planned or scheduled by the Contractor, unless a Change Order has been executed pursuant to Section 19(g) changing the Time for Completion or the Contract Completion Date to reflect such early completion. See Section 19 for procedures for the Contractor to follow if he plans early completion of the Work and wishes to request a Change Order reflecting the early completion date.

If there is an extension in the Time for Completion or the Contract Completion Date and if the Contractor is entitled to compensation under Subsection 42(b), and where there is no change in the Work, an itemized accounting of the following direct Site overhead expenses will be considered as allowable costs to be used in determining the compensation due the Contractor:

Site superintendent prorata salary, temporary Site office expense, temporary Site facilities, and temporary Site utilities including basic telephone service, electricity, heat, water, and sanitary/toilets. A ten percent (10%) markup of these expenses will be allowed to compensate the Contractor for home office and other direct or indirect overhead expenses.

- (f) If the Contractor submits a claim for delay damages pursuant to Subsection 42(b) above, the Contractor shall be liable to the Owner for a percentage of all costs incurred by the Owner in investigating, analyzing, negotiating and litigating the claim, which percentage shall be equal to the percentage of the Contractor's total delay claim that is determined through litigation to be false or to have no basis in law or in fact. (§2.2-4335(C), Code of Virginia.)
- (g) Any change in the Contract Time for Completion or Contract Completion Date shall be accomplished only by issuance of a Change Order.
- (h) If the Contractor fails to complete the Work within the Time for Completion or the Contract Completion Date, the Contractor shall be liable to the Owner in the amounts set forth in the Supplemental General Conditions, if any, not as a penalty, but as fixed, agreed and liquidated damages for delay until the Work is substantially or finally completed as the case may be. If liquidated damages are not so fixed in the Supplemental General Conditions, the Contractor shall be liable for any and all actual damages sustained as a result of delay. In addition to damages for delay, whether liquidated or actual, the Contractor shall also be liable for any and all actual damages sustained by the Owner as a result of any other breach of the Contract, including, but not limited to, Defective Work and abandonment of the Contract.
- (i) If liquidated damages are provided by the Supplemental General Conditions, the following provisions apply:
 - (1) If the Work is not substantially complete by the Time for Completion or Contract Completion Date, the Contractor shall owe to the Owner, not as a penalty but as Step One liquidated damages, the sum stated in the Supplemental General Conditions for Step One liquidated damages for each and every partial or total calendar day of delay in Substantial Completion.

- (2) Once the Work is substantially complete, the accrual of Step One liquidated damages shall cease and the Contractor shall have thirty (30) calendar days, unless otherwise specified in the Contract Documents, in which to achieve Final Completion of the Work.
- (3) If Final Completion of the Work is not achieved on or before the thirtieth (30th) calendar day, or the date specified in the Contract Documents, after Substantial Completion, and if the Owner has not granted any extension of time, the Contractor shall owe to the Owner, not as a penalty but as Step Two liquidated damages, the sum stated in the Supplemental General Conditions as Step Two liquidated damages for each and every partial or total calendar day of delay in Final Completion.

43. INSPECTION FOR SUBSTANTIAL COMPLETION & FINAL COMPLETION

- (a) The Contractor shall notify the Owner, in writing on the Certificate of Partial or Substantial Completion by the Contractor (Form AC-13.2a), of the date when the Work or designated portion thereof, will be, in his opinion, substantially complete and ready for inspection and testing to determine if it has reached Substantial Completion. The notice shall be given at least ten (10) days in advance of said date and shall be forwarded through the Architect/Engineer, who will attach his written endorsement as to whether or not he concurs with the Contractor's statement that the Work will be ready for inspection and testing on the date given. The Architect/Engineer's endorsement is a convenience to the Owner only and shall not relieve the Contractor of his responsibility in the matter nor shall the Architect/Engineer's endorsement be deemed to be evidence that the Work was substantially complete and ready for inspection and testing. Inspection and testing shall take place at a time(s) mutually agreeable to the Contractor, Owner and Architect/Engineer.

The inspection shall include a demonstration by the Contractor that all equipment, systems and operable components of the project function properly and in accordance with the Contract Documents. The Contractor shall furnish access for the inspection and testing as provided in Section 21 of these General Conditions. The inspection and testing shall determine whether Substantial Completion has been accomplished and shall result in a written list of unfinished Work and Defective Work, commonly referred to as a "punch list", which must be finished and corrected to obtain Final Completion.

After successful completion of the testing and the Architect/Engineer determines that, in its opinion, the Work, either in whole or in part, is substantially complete, the Architect/Engineer shall notify the Owner, in writing on the Certificate of Partial or Substantial Completion by the Architect/Engineer (Form AC-13.1a), that the Work, or a specified portion thereof, is recommended to be declared substantially complete. The Owner shall notify the Contractor, in writing, of the date the Owner accepts the Work, or the specified portion thereof, as substantially complete or the Owner shall notify the Contractor of the deficiencies to be corrected or completed before such Work will be accepted as substantially complete.

- (b) The Contractor shall notify the Owner, in writing on the Certificate of Completion by the Contractor (Form AC-13.2), of the date when the Work has reached or will reach Final Completion and will be ready for final inspection and testing. The notice shall be given at least five (5) days in advance of said date and shall be forwarded through the Architect/Engineer, who will attach his endorsement as to whether or not he concurs in the Contractor's statement that the Work will be ready for inspection

and testing on the date given. That inspection and any necessary testing shall be conducted in the same manner as the inspection for Substantial Completion. When the Work is finally and totally complete, including the elimination of all defects, and the Owner has received all project close-out deliverables, the Work shall be finally accepted by the Owner and final payment shall be made in accordance with Section 36 of these General Conditions.

- (c) The Architect/Engineer shall conduct the inspections. The Owner may elect to have other persons of its choosing also participate in the inspections. If one or more Substantial or Final Completion reinspections are required, the Contractor shall reimburse the Owner for all costs of reinspection or, at the Owner's option, the costs may be deducted from payments due to the Contractor.
- (d) A representative of the local Building Official will either be present at the Substantial and Final Completion inspections or otherwise inspect the completed Work and advise the Owner whether the Work meets the requirements of the applicable building code(s).
- (e) Approval of Work at or as a result of any inspection required herein shall not release the Contractor or his surety from responsibility for complying with the Contract.

44. GUARANTEE OF WORK

- (a) Except as otherwise specified, all Work shall be, and is hereby, guaranteed by the Contractor against defects resulting from the use of materials, equipment or workmanship, which are defective, inferior, or not in accordance with the terms of the Contract, for one (1) year from the date of Final Completion of the entire Project by the Owner. Equipment and facilities which have seasonal limitations on their operation (e.g. heating or air conditioning units) shall be guaranteed for one (1) full year from the date of seasonally appropriate tests and acceptance, in writing, by the Owner. Where the Owner agrees to take Beneficial Occupancy of a portion or phase of the Work which has been determined to be substantially complete before the entire Work is finally completed, the guarantees for the materials, equipment and workmanship in that portion or phase shall begin on the date that the Owner takes Beneficial Occupancy, unless otherwise specified in the Supplemental General Conditions, Special Conditions, or by separate agreement.
- (b) Unless the Owner approves otherwise, the warranty period for new equipment shall begin with the contract substantial completion date, regardless of whether the Contractor has used said equipment in the performance, installation, or application of the Work.
- (c) If, within any guarantee period, Work which is not in accordance with the Contract, Defective Work, or inferior material, equipment or workmanship is noted by the Owner or Architect/Engineer which requires or renders necessary repairs or changes in connection with the guaranteed Work, the Contractor shall, promptly upon receipt of notice from the Owner, such notice being given not later than two weeks after the guarantee period expires, and without expense to the Owner:
 - (1) Place in satisfactory condition in every particular all of such guaranteed Work and correct all defects, inferior materials, equipment or workmanship therein;
 - (2) Make good all damage to the structure or Site or equipment or contents thereof, which, in the opinion of the Owner or the Architect/Engineer, is the result of the use of materials, equipment

or workmanship which are inferior, defective or not in accordance with the terms of the Contract; and

- (3) Make good any Work or materials or the equipment and contents of structures and/or Site disturbance that results from fulfilling the provisions of this Section.
- (d) In any case, when in fulfilling the requirements of the Contract and this guarantee or any other guaranty or warranty, the Contractor disturbs any work performed by a separate contractor, he shall restore such work to a condition satisfactory to the Architect/Engineer and Owner and guarantee such restored work to the same extent as if it was guaranteed under this Contract.
 - (e) If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee as set forth in this Section, the Owner may have the defects or inferior materials, equipment or workmanship corrected and the Contractor and his surety shall be liable for all expense incurred.
 - (f) All special warranties and guarantees applicable to definite parts of the Work that may be stipulated in or required by the Contract Documents shall be subject to the terms of this Section during the first year of the life of such special warranty or guarantee.
 - (g) The guarantee of this Section shall be in addition to and not in lieu of all other warranties, express or implied, applicable to or arising from this Contract or by law.
 - (h) Nothing contained in this Section shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including liability for Detective Work under Section 30. This Section relates only to the specific obligation of the Contractor as set forth in this Section to correct the Work and does not limit the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor the time within which proceedings may be commenced to establish the Contractor's liability with respect to his other obligations under the Contract Documents.
 - (i) In the event the Work of the Contractor is to be modified by another contractor, either before or after the Final Inspection provided by Section 43 of the General Conditions, the first Contractor shall remain responsible in all respects under this Section's Guarantee of Work and under any other warranties or guarantees, express or implied, applicable to or arising from this Contract or by law. However, the Contractor shall not be responsible for any defects in material or workmanship introduced by the contractor modifying his Work. The first Contractor and the contractor making the modifications shall each be solely responsible for his respective work. The contractor modifying the earlier Work shall be responsible for any damage to or defect introduced into the Work by his modification. If the first contractor claims that a subsequent contractor has introduced defects of materials and/or workmanship into his Work, it shall be the burden of the contractor making the claim to demonstrate clearly the nature and extent of such introduced defects and the other contractor's responsibility for those defects. Any contractor modifying the work of another shall have the same burden if he asserts that defects in his work were caused by the contractor whose work he is modifying.

45. ASSIGNMENTS OF CONTRACTUAL OBLIGATIONS

Neither party to the Contract shall assign the Contract in whole or any part without the written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder, without the prior written consent of the Owner. No assignment shall relieve any party from its obligations under the Contract.

46. CONTRACTUAL DISPUTES (§2.2-4363, Code of Virginia)

Contractual claims, whether for money or for other relief, shall be submitted, in writing, no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim must be given at the time of the occurrence or beginning of the Work upon which the claim is based. The filing of a timely notice is a prerequisite to recovery under this Section. Although the Contractor may be required to submit certain classes of claims prior to final payment, and the Contractor is not prevented from filing claims during the pendency of the Work, the Owner shall not be obligated to render a final written decision on any claim until after final payment. All claims shall be submitted along with all practically available supporting evidence and documentation.

No written decision denying a claim or addressing issues related to the claim, if rendered prior to final payment, shall be considered a denial pursuant to this Section unless the written decision makes express reference to this Section and is signed by the Owner or his designee. The Contractor may not institute legal action prior to receipt of the Owner's final written decision on the claim unless the Owner fails to render such a decision within ninety (90) days of submission of the claim or within ninety (90) days of final payment, whichever is later.

The decision of the Owner shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in §2.2-4364 of the Code of Virginia. Failure of the Owner to render a decision within 90 days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. The sole result of the Owner's failure to render a decision within 90 days shall be the Contractor's right to immediately institute legal action. No administrative appeals procedure pursuant to §2.2-4365 of the Code of Virginia has been established for contractual claims under this Contract. Venue for any litigation arising hereunder shall be in the Circuit Court for the County of Albemarle, Virginia.

47. ASBESTOS

- (a) This subsection applies to projects involving existing buildings where asbestos abatement is not a part of the Work, when the scope of the project has been reviewed and a comprehensive survey conducted by an individual licensed by the Virginia Department of Professional and Occupational Regulation to conduct building inspections for asbestos containing materials in buildings, and where the Owner has attempted to remove or encapsulate all asbestos containing material that may become friable or damaged during this Project.

Prior to commencement of Work, the results of the comprehensive survey or any other asbestos survey shall be made available to the Contractor, who shall be responsible for performing his Work

so as not to disturb any remaining asbestos, encapsulated or otherwise, identified in such survey or surveys.

If the Contractor discovers or inadvertently disturbs any material that he knows, should have known or has reason to believe, may contain asbestos that has not been previously identified, was overlooked during the removal, was deemed not to be friable or was encapsulated, the Contractor shall stop Work in the area containing or suspected to contain the asbestos, secure the area, and notify the Owner and the Architect/Engineer immediately by telephone or in person with written notice as soon as possible. The Owner will have the suspect material sampled.

If the sample is positive and must be disturbed in the course of the Work, the Owner shall have the material repaired or removed and shall pay for the bulk sample analysis.

Except as provided in §11-4.1 of the Code of Virginia, if the material disturbed is not within the Contractor's authorized Work and/or Work area or under this Contract, the Contractor shall pay for all associated sampling and abatement Costs.

- (b) If asbestos abatement is included as a part of the Work, the Contractor shall assure that the asbestos abatement work is accomplished by those duly licensed as described in Section 3 of these General Conditions and in accordance with the specific requirements of the Contract and all applicable laws and regulations.
- (c) If asbestos abatement is included as part of the Work, the licensed asbestos Subcontractor shall obtain the insurance required under Section 11(e) of these General Conditions.

48. TRAINING, OPERATION AND MAINTENANCE OF EQUIPMENT

- (a) As a part of the Work, the Contractor in conjunction with his Subcontractors and Suppliers shall provide the Owner's operations and maintenance personnel with adequate instruction and training in the proper operation and maintenance of any equipment, systems, and related controls provided or altered in the Work. The training requirements may be further defined in the specifications.
- (b) The Contractor shall provide the Owner with a minimum of two (2) copies of operating, maintenance and parts manuals for all equipment and systems provided in the Work. Further specific requirements may be indicated in the specifications.

49. PROJECT MEETINGS

- (a) The intention of this Section is that the Contractor, the Owner and the A/E have timely exchange of information and cooperate to accomplish the Work as required by the Contract Documents. The Contractor is responsible for managing the Work, obtaining approvals and requesting clarifications on a timely, reasonable basis. The Owner and its A/E are responsible for making a reasonable effort to provide timely responses to the Contractor.

(b) **Preconstruction Meeting:**

Prior to the start of construction and no later than 15 calendar days after the Notice to Proceed, a "Preconstruction" meeting shall be held with attendees to include the Owner's Project Manager and Project Inspector, the Architect/Engineer's project manager and representatives of each design discipline involved in the Project, the Contractor's project manager and superintendent (and scheduler, if Contractor desires), and representatives of the Contractor's major Subcontractors. The purpose of the meeting is to clarify and discuss the specifics related to, but not limited to, the following:

- (1) Persons involved from each entity and their chain of authority including the names of persons authorized to sign Change Orders and any limits to their authority.
- (2) Names, addresses, telephone numbers, FAX numbers, and email addresses to be used for Requests for Information (RFI), Requests for Clarification (RFC), Requests for Proposals (RFP), shop drawings, submittals, and notices.
- (3) Contractor's proposed construction schedule and Owner's sequencing requirements, if any.
- (4) Schedule of Values and Certificate for Payment (Form AC-12) requirements and procedures.
- (5) Procedures for shop drawings, product data and Submittals.
- (6) Procedures for handling Field Orders and Change Order Form AC-11.
- (7) Procedures for Contractor's request for time extension, if any.
- (8) Construction Site requirements, procedures and clarifications to include:
 - Manner of conducting the Work presentation to be done by members of the project team, preferably Contractor's superintendent and project manager.
 - Site specialties such as dust and erosion control, stormwater management, project signs, clean up and housekeeping, temporary facilities, utilities, security, and traffic.
 - Safety.
 - Layout of the Work.
 - Quality control, testing, inspections and notices required.
 - Site visits by the A/E and others.
 - Owner's Project Inspector duties.
 - Running Punch List.
 - As-Built Drawings.
- (9) Procedures and documentation of differing or unforeseen Site conditions.
- (10) Monthly Pay Meeting.
- (11) Project Close-Out requirements and procedures.
- (12) Project records.

(c) **Monthly Pay Meeting:**

Section 36 establishes the requirement for a monthly pay meeting which will usually be held at or near the Site. In addition to Owner, A/E and Contractor representatives, the following representatives, at a minimum, should be available to attend portions of the meeting, as applicable or necessary:

- Owner's Project Inspector.
- Contractor's project superintendent.
- A/E representative of each discipline where Work was performed for the current pay request or where Work is projected to be performed in the coming month.
- A representative of each subcontractor who performed work included in the current pay request.
- A representative of each subcontractor who is projected to perform work in the coming month.

The following topics should be included, as a minimum, in the monthly pay meeting:

- (1) Observations of status, quality and workmanship of Work in progress.
- (2) Validation of the Schedule of Values and Certificate for payment.
- (3) Conformance with proposed construction schedule.
- (4) Outstanding Requests for Information, Requests for Clarification and Requests for Proposal.
- (5) Submittals with action pending.
- (6) Status of pending Change Orders.
- (7) Status of Running Punch List items.
- (8) Work proposed for coming pay period.
- (9) Discussions of any problems or potential problems which need attention.

(d) **Other Meetings:**

Requirements for other meetings, such as progress meetings, coordination meetings, preinstallation meetings and/or partnering meetings, may be included in the Contract Documents.

***** END OF GENERAL CONDITIONS *****

SUPPLEMENTAL GENERAL CONDITIONS

The COUNTY OF ALBEMARLE CONSTRUCTION CONTRACT GENERAL CONDITIONS (Revised May 2018) are modified and supplemented as hereinafter described.

1. Section 11(B) Contractor's and Subcontractor's Insurance: Insurance Requirements
 - (a) Worker's Compensation: requires a minimum of **\$1,000,000/\$1,000,000/\$1,000,000**
 - (b) General Liability: requires a minimum of **\$1,000,000/\$2,000,000**
 - (c) Automobile Liability: requires a minimum of **\$1,000,000**
 - (d) Umbrella Liability: requires a minimum of **\$1,000,000**
 - (e) Professional Liability: requires and minimum of **\$1,000,000**
 - (1) Shall be required by the firm that completes all delegated design as identified in the project's plans and specifications.
 - (2) If delegated design is to be completed by a firm that is not the General Contractor, the General Contractor shall submit a Certificate of Insurance for the design firm completing the delegated design prior to the commencement of any design work. All other insurance requirements shall also apply to the firm completing the delegated design.
 - (g) Environmental Pollution is not required by this solicitation.
 - (f) Cyber Liability is not required by this solicitation.

2. Section 12 – BUILDER'S RISK INSURANCE
Delete Paragraphs (a) and (b).

3. Section 42 - DAMAGES FOR DELAY, EXTENSION OF TIME
Add the following paragraphs:
 - (j) It is imperative that the Work in this contract be substantially completed not later than August 8th, 2022 to give time for the Owner to furnish and equip the facility and meet other contractual obligations. The Contractor represents and agrees that he has taken into account in his bid the requirements of the bid documents, the location, the time allowed for the Work, local conditions, availability of materials, equipment, and labor, and any other factors which may affect performance of the Work. The Contractor agrees and warrants that he will achieve substantial completion of the Work not later than August 8th, 2022.
 - (1) Assuming timely execution of the Contract with applicable Bonds, Notice to Proceed will be given to the Contractor on or before May 13st, 2022.

 - (k) Subject to the provisions of the General Conditions allowing for extension of time allowed for completion of the Work, if the work is not substantially completed by the specified date, the Contractor shall owe to the Owner, not as a penalty but as liquidated damages, the sum of Five Hundred and 00/100 Dollars (\$500.00) per day for each and every calendar day for delay in substantial completion of the Work beyond August, 9, 2022. Likewise, if the Work is not finally completed by the specified date, the Contractor shall owe to the Owner, not as a penalty but as liquidated damages, the sum of Two Hundred Fifty and 00/100 Dollars (\$250.00) per day for each and every calendar day of delay in final completion of the Work.

- (l) The Owner may withhold from the monthly Progress Payment, the current value of the liquidated damages. Failure of the Owner to withhold liquidated damages during ongoing operations that have exceeded the Contract Completion Date is not a waiver of the Owner's entitlement to damages as set forth in the Contract Documents.

- (m) Final accounting of liquidated damages will be administered through a deduction in the final amount owed the Contractor.

SPECIAL CONDITIONS
ALBEMARLE COUNTY PUBLIC SCHOOLS

1. Worker Standards of Conduct/Dress – Hard hats, safety shoes, appropriate shirts and pants are required at all times. Smoking is prohibited on school property. There is to be no contact or harassment of any kind between workers, teachers and students. Only the project superintendent may contact the school staff if necessary. Violence, Swearing, Drugs, Alcohol, Firearms and Weapons are prohibited on school property. Any workers violating these standards of conduct shall be ordered off the site and not allowed to return.
2. Workers shall wear identification indicating the company that employs them while working in an occupied school, even during summer months.
3. Drawings and/or Specifications – Any Additional Instructions by Architect/Owner to explain drawing and specifications shall be binding on Contractor.
4. The Contractor (or his designated sub-contractor) shall obtain and pay the fees for all permits necessary for the construction of the project, unless specifically stated otherwise. The Owner will pay for the County Building Permit fees, and the Contractor shall obtain the permits. The Owner will pay for water and sewer connection fees, and the contractor shall obtain the permit. The Contractor shall pay for the tapping fee whether done by himself or pay the Service Authority to make tap. Fees for all bonds (excluding erosion control bonds) will be the sole responsibility of the Contractor. It is the responsibility of the Contractor to determine which permits are necessary. The Owner will pay for the permanent connection to franchised utility companies, electric service, and gas service. The Contractor shall coordinate and schedule all permanent utility service work.
5. Regarding asbestos work, the general contractor shall be responsible for submitting any required notices to all appropriate regulatory agencies and shall do so within the required timeframe.
6. Contractor's staging area, protective barriers and safety fencing, employee parking and loading access will be discussed and the pre-bid meeting.
7. Contractor's staging area and general construction site shall be kept neat and clean so that grass is cut, and debris and trash is removed on a weekly basis if not more frequently.
8. Safe access to the designated areas, fire lanes, entrance corridors, school parking areas and emergency egress doors and sidewalks adjacent to the construction area must be maintained at all times for pedestrians and maintenance vehicles.
9. Liquidated Damages: Shall be in accordance with the Supplementary General Conditions.
10. Section 01200 Project Meetings and Section 01300 Submittals are to include the following:
 - 1) Bi-Monthly Job-Site meetings (online meetings will be scheduled at the Owner or Project Managers discretion).

- 2) The Contractor's project superintendent shall provide the Architect and Owner with copies of his daily report on a weekly basis including manpower per trade, job progress, weather, and activities.
11. Application for Payment and payments shall be delayed when project cleanliness is not maintained, weekly broom cleaning is required for interior renovations.
12. The Contractor shall coordinate all construction operations and deliveries with the school activity schedule. If school is in session while construction is underway, deliveries to the construction site shall be coordinated with the owner or Project Manager.
13. If school is in session while construction is underway, the Contractor shall allow for 5 days when work will be prohibited for student special testing in the school in the spring. These dates will be confirmed at the Pre-Construction meeting.
14. Contractors Work within the Existing and Functioning School Area may be limited based on summer school use and or use of the school by outside programs. Excessively noisy work or work producing noxious fumes adjacent to classrooms in session may also be subject to work after regular hours. Any other restrictions will be handled on a case-by-case basis.
15. Hours of work will be limited for projects with exterior work areas, noisy loading or unloading, and work with close neighbors who could be adversely affected. Limitations, if any, will be discussed at the Pre-bid Meeting.
16. At the completion of the project and before the Final Application for Payment will be approved, Contractor shall provide the Owner written statement certifying that the work is asbestos free.
17. UL Labels are required on all electrical and mechanical equipment. If unlabeled equipment is delivered to the job site, Contractors shall remove and replace with properly labeled equipment or shall pay for UL field testing to properly label prior to payment being made such equipment.
18. Testing/Special Inspections - Owner shall obtain and pay for testing and special inspections services. The Contractor shall pay for any required re-testing due to failed initial tests. Special Inspectors instructions shall be binding on the Contractor. Contractor shall call the testing company designated by the Owner and coordinate any special inspections. Contractor shall provide the Special Inspector with any necessary equipment, such as ladders, scaffolding, etc. for inspection purposes. At the completion of the project and before the Final Application for Payment will be approved, all deficiencies on any special inspection reports, shall be remedied.
19. Building Inspections Department – **The Contractor shall call for inspections in accordance with the local department's procedures or by no later than 12 p.m. the day prior the inspection is requested.** Requests for fire alarm inspections require several days advance notice. Fire alarm inspection requests shall be made and coordinated by the Contractor with assistance of all related trades such as fire alarm, mechanical and automatic control system subcontractors. A successful dry run test must be made and witnessed by the Owner's representative before calling a County Inspection.
20. Community Development Department Inspections: A Zoning Inspection for the placement of the generator pad is required. It is the contractor's responsibility to contact the County of Albemarle Project Manager so he/she can schedule the inspection.

21. Building security is the responsibility of the Contractor until final acceptance.
22. The Contractor shall provide approved, framed, operating and maintenance instruction, wiring diagrams and control diagrams as applicable:

Sprinkler System	Fire Alarm System	Telecommunication System
Heating	Ventilating System	Sound System
Fans	Pumps	Motors
Generator	Energy Management	Other Alarms

Any other items or systems required but not specifically listed.

23. Constructor to provide comprehensive training and equipment demonstration for the Owner's designated representatives and the Contractor shall schedule at least 2 weeks in advance for Owner's coordination review and approval.
24. Cleaning during construction: Areas of work shall be cleaned broom clean at least weekly to minimize tracking dirt; Owners existing equipment and facility shall be protected from dust, splash or splatter and cleaned or replaced to return to pre-construction conditions.
25. Final Cleaning to be performed to the Owner's satisfaction. If unsatisfactory cleaning is not remedied within 24 hour written notice to Contractor from Owner, Owner shall complete and deduct from Contractor's final payment.
26. Weather Days: shall be counted cumulatively for the project duration and agreed upon monthly in the pay meeting notes, never to shorten the duration.
27. Temporary Bathroom Facilities must be provided by the contractor with a location to be discussed in the preconstruction meeting.
28. Power and Water is provided at the site, by Owner, so long as privilege is not abused. Contractor is to provide Temporary Toilet facility, do not use the restrooms.

*** END OF SPECIAL CONDITIONS ***



COVID-19 POLICIES FOR THE COUNTY OF ALBEMARLE FACILITIES PLANNING & CONSTRUCTION PROJECTS

Effective October 22, 2020

ALL CONTRACTORS SHALL SUBMIT A PROJECT SPECIFIC COVID-19 MITIGATION PLAN WHICH COMPLIES WITH ALL FEDERAL, STATE AND LOCAL GOVERNMENT REQUIREMENTS AND RECOMMENDATIONS. THIS PLAN MUST BE SUBMITTED TO THE COUNTY PROJECT MANAGER PRIOR TO BEGINNING ANY WORK.

The following are minimum plan requirements which been established per the CDC's recommendations, the Governor of Virginia, the County of Albemarle and/or Albemarle County Public Schools:

JOBSITE ENTRANCES

- If entering a County or School owned facility, then workers shall complete the posted Self Screening/ Risk Assessment. Workers shall only use designated visitor entrances unless otherwise approved.
- For work outside County or School Owned facilities, the Contractor shall post and implement their own screening procedure at all jobsite entrances.
- Contractor shall provide and post "Construction Work Area" signage at any jobsite entrances.
- Contractor shall provide hand washing station or alcohol-based hand sanitizer at all job site entrances.
- The best way to prevent illness is to avoid exposure to the virus so if a worker or their family member are sick then they need to stay home and immediately contact their Supervisor.

REPORTING

- Contractors shall report a diagnosis of COVID-19 to their local health district and the County Project Manager within 24 hours. If the County Project Manager is unavailable, then contact the Chief of Facilities Planning & Construction.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Per the Albemarle County emergency ordinance, cloth face coverings must be worn in all indoor public spaces and in all outdoor public spaces where 6' of physical distancing is not able to be maintained.
- On school properties face coverings shall be worn in all outdoor spaces regardless of physical distancing. Bandanas, neck gaiters, scarves, and face shields without an underlying mask or acceptable face covering are also not permitted.

SOCIAL DISTANCING

- All workers should practice social distancing, staying at least six (6) feet apart.
- Work requiring close contact with other workers or the public should be avoided. When possible evaluate an alternative work plan or shifts to allow minimum physical distancing.
- Per the Albemarle County emergency ordinance, gatherings will be restricted to 50 persons, with limited exceptions.
- Virtual meetings should be held in lieu of attending in person. If in-person meetings are needed, then hold meetings outside or in open areas where possible.

SANITATION

- Daily cleaning of high touch jobsite surfaces with soap and water then use of a disinfectant shall be performed per CDC guidelines. High touch surfaces include but are not limited to push / pull door hardware, handrails, tabletops, light switches, toilets, faucets and sinks. Special care should be taken when cleaning system and equipment control panels.
- If the Contractors employee or subcontractor has a confirmed diagnosis, then the Contractor shall be responsible for all cleaning and disinfecting the facility per CDC guidelines.

For the most current recommendations and Executive Orders please refer to the following resources:

- Centers for Disease Control <https://www.cdc.gov/coronavirus/2019-ncov/index.html>
- Governors Executive Orders <https://www.governor.virginia.gov/executive-actions/>
- Albemarle County Emergency Order <https://www.albemarle.org/Home/ShowDocument?id=5026>



ACPS FACILITIES COVID-19 SCREENING FOR EMPLOYEES & VISITORS

PLEASE READ EACH QUESTION CAREFULLY AND SELECT THE ANSWER THAT APPLIES TO YOU.

<p>In the past 48 hours, have you or has anyone in your household experienced any of the following symptoms:</p> <ul style="list-style-type: none"> • fever (100°F or higher) or chills • cough • shortness of breath or difficulty breathing • fatigue • muscle or body aches • headache • new loss of taste or smell • sore throat • congestion or runny nose • nausea or vomiting • diarrhea 	YES	NO
<p>In the past 14 days, have you been in close contact (within 6 feet for a total of 15 minutes or more over a 24-hour period) with someone with suspected or confirmed COVID-19?</p>	YES	NO
<p>In the past 10 days, have you been diagnosed with or presumed positive for COVID-19?</p>	YES	NO
<p>Are you isolating or quarantining because you may have been exposed to a person with COVID-19 or are worried that you may be sick with COVID-19?</p>	YES	NO
<p>Are you or is anyone in your household currently waiting on the results of a COVID-19 test?</p>	YES	NO

Did you answer NO to ALL QUESTIONS?

Access to ACPS facilities **APPROVED**.

Did you answer YES to ANY QUESTION?

Access to ACPS facilities **NOT APPROVED**.
Please see page 2 for further instructions.

Thank you for helping us protect you and others during this time.

THE SCREENING YOU COMPLETED INDICATES THAT YOU MAY BE AT INCREASED RISK FOR COVID-19.

If you are not feeling well, we hope that you feel better soon!

HERE ARE INSTRUCTIONS FOR WHAT TO DO NEXT:

1

If you are not already at home, please avoid contact with others and go straight home immediately.

2

Monitor your symptoms and call your health care provider to determine if COVID-19 testing is recommended.

3

If you are an employee, contact your supervisor to discuss options for telework and/or leave.

Before going to a healthcare facility, please call and let them know that you may have an increased risk for COVID-19. In case of a life-threatening medical emergency, dial 911 immediately!

RETURNING TO WORK: GUIDANCE FOR EMPLOYEES



If you have symptoms consistent with COVID-19, you should contact your health care provider or seek COVID-19 testing. Do not return to work until you are cleared by a health care provider OR you receive a negative test result AND you have been fever-free for 24 continuous hours without the use of fever-reducing medications. If you do not contact your health care provider or seek testing, you must stay home until at least 10 days have passed from the onset of symptoms. **If you test positive for COVID-19 and have symptoms**, you should stay home until at least 10 days have passed from the onset of symptoms AND you have been fever-free for 24 continuous hours without the use of fever-reducing medications AND respiratory symptoms have improved. **If you test positive for COVID-19, but have no symptoms and remain asymptomatic**, you should stay home until at least 10 days have passed since the positive test result. Employees should report a diagnosis of COVID-19 to their supervisor as soon as possible.



If you have a chronic medical condition or have received an alternate diagnosis from a health care provider that causes COVID-19-like symptoms and you need to access an ACPS facility within the next few days, please call your school nurse or the ACPS COVID-19 Coordinator at 434-249-4625 to determine whether you can safely be granted access to an ACPS facility.

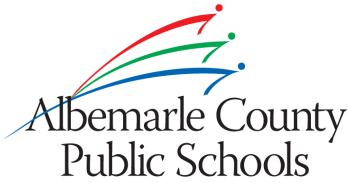


If you have been in close contact with someone who has COVID-19, you should stay home and self-quarantine for 14 days from the last day of exposure. **If you are staying home pending the test result of a sick member of your household**, you may return to work if the symptomatic person receives a negative COVID-19 test result.



If you develop symptoms during quarantine, you should obtain a COVID-19 test at the provider of your choice or contact the health department for assistance. Symptomatic employees awaiting COVID-19 test results must not report to work.

This screening tool was developed by the Centers for Disease Control and Prevention (CDC) and adapted for use by Albemarle County Public Schools. For information about COVID-19 and basic instructions to prevent the spread of disease, visit the CDC's COVID-19 website at: <https://www.cdc.gov/covid19>



CONTRACT #«number»
«Company»
«Address 1»
«Address 2»
«City», «State» «Postal Code»
«corporate status, as confirmed by SCC»
(Contractor)

Project name:	
A/E, if applicable:	
A/E contract #:	
Project Mgr:	

SCHOOL BOARD OF ALBEMARLE COUNTY, VIRGINIA,
 401 McIntire Rd.
 Charlottesville, Virginia 22902
a body corporate under the laws of the Commonwealth of Virginia,
(School Board or Owner)

This Agreement (“Agreement” or “Contract”) made and entered into on this ____ day of _____, 2020, between the Contractor as identified above and the School Board (collectively, the Parties), hereby agree, in consideration of the mutual covenants and stipulations set forth below:

1. **Scope of Work:** The Contractor shall furnish all labor, equipment, and materials and perform all work for the project as described in the Invitation to Bid (IFB) # _____, p. _____ and the Owner’s plans and specifications, including all work described in the Bid Form as Base Bid plus additives, (collectively, the Work) in strict accordance with the Contract Documents. In brief, the Contractor shall _____.

2. **Incorporation of documents and Order of Precedence:** To the extent that they do not conflict with the terms of this Agreement, the following documents are incorporated by reference in their entirety:
 - the Invitation to Bid, # _____;
 - the Bid Form submitted by the Contractor;
 - the County of Albemarle Construction Contract General Conditions, as included in the IFB;
 - the Supplemental General Conditions, if any;
 - the Special Conditions attached to the Owner’s Invitation for Bids;
 - the Owner’s Project Plans and Specifications dated _____; and modifications shown as Addenda _____; and
 - the Project Manual dated _____ (which may include some or all of the above documents).

In the event that a conflict or ambiguity exists or is created between this Agreement, the IFB, and/or the Contractor’s submitted Bid Form, the terms of this Agreement first and the IFB second, if necessary, shall govern and supersede any such conflicting or ambiguous terms. The Supplemental General Conditions shall thereafter take precedence over the General Conditions.

3. **Payment/Consideration Schedule:** In consideration of the Work to be performed by Contractor, as set forth in the section entitled, “Scope of Work,” the School Board agrees to pay Contractor for completed and accepted work the total sum of _____ dollars (\$ _____) as calculated below:

Base bid:	\$		
Additive 1:	\$		for
Additive 2:	\$		for
Total:	\$		

4. Term: The Work shall be commenced on a date to be specified in a written order of the Owner and shall be Substantially Completed within [REDACTED] calendar days. The Work shall be finally completed within [REDACTED] days after the date of Substantial Completion of the Work or no later than the date of Final Completion of [REDACTED], whichever is sooner. Time is of the essence.
5. Non-Appropriation: The continuation of the terms, conditions, and provisions of this Agreement beyond June 30 (the end of the School Board's fiscal year) of any year, is subject to its approval and ratification by the School Board and appropriation by them of the necessary money to fund said contract for each succeeding year. If sufficient funds are not appropriated and budgeted in any fiscal year for payments due under this Agreement, the School Board shall immediately notify Contractor, and this Agreement shall terminate on the last day of the fiscal year for which appropriations were received without penalty or expense to the School Board of any kind whatsoever.
6. Preconditions to Obligation: The School Board shall not be obligated to purchase or pay for goods, services, or materials under this Agreement unless the School Board has ordered such goods, services, and/or materials and until the Contractor has delivered any ordered goods, services, and/or materials. The School Board may increase or decrease quantities of ordered goods, services, and materials as required and in its discretion.
7. Faith-based Organizations: The School Board does not discriminate against faith-based organizations in accordance with Code of Virginia §2.2-4343.1.
8. Nondiscrimination: Pursuant to Virginia Code §§ 2.2-4201 and 2.2-4311, during the performance of this Contract, Contractor agrees as follows:
 - A. Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of Contractor. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this Nondiscrimination clause, including the names of all contracting agencies with which the Contractor has contracts over \$10,000;
 - B. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that Contractor is an equal opportunity employer;
 - C. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section; and
 - D. Contractor shall include the provisions of the foregoing paragraphs A, B, and C in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.
9. Drug-Free Workplace: Pursuant to Virginia Code Section § 2.2-4312, during the performance of this Contract, Contractor agrees to:
 - A. Provide a drug-free workplace for Contractor's employees.
 - B. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
 - C. State in all solicitations or advertisements for employees placed by or on behalf of Contractor that Contractor maintains a drug-free workplace.
 - D. Include the provisions of the foregoing clauses in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

10. Compliance with Immigration Laws: Contractor does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986, pursuant to Virginia Code §2.2-4311.1.
11. Compliance with All Laws: Contractor shall comply with all federal, state, and local statutes, ordinances, and regulations now in effect or hereafter adopted, in the performance of scope of work set forth herein. Contractor represents that it possesses all necessary licenses and permits required to conduct its business and will acquire any additional licenses and permits necessary for performance of this Agreement prior to the initiation of work.
12. Business Entity Registration. Pursuant to Virginia Code § 2.2-4311.2, Contractor shall be registered and authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 or as otherwise required by law. Contractor shall submit proof of a required registration to the School Board. Additionally, if required, Contractor shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50 of the Code of Virginia, to be revoked or canceled at any time during the term of the Agreement.
13. Business License Requirement: If Contractor is a business located in Albemarle County, Virginia or at any time during the performance of this Agreement obtains situs for purposes of business license taxes, it shall be unlawful for such business to conduct or engage in such business, trade, or occupation without having first obtained the proper license from the Albemarle County Department of Finance. Contractor covenants that it has a business license where one is required to perform this Agreement.
14. Non-Assignment: All of the conditions and provisions in this Agreement shall extend to and bind the legal representatives, successors and assigns of the respective parties. Neither party to the Agreement shall assign or transfer their interest in the contract without the prior written consent of the other, which shall not be unreasonably withheld.
15. Audit: The Contractor shall maintain full and accurate records with respect to all matters covered under the Agreement including, without limitation, accounting records, written policies and procedures, time records, telephone records, reproduction cost records, travel and living expense records and any other supporting evidence necessary to substantiate charges related to the Agreement. Contractor's records shall be open to inspection and subject to audit and/or reproduction, during normal working hours by the School Board and its employees, agents or authorized representatives to the extent necessary to adequately permit evaluation and verification of any invoices, payments, or claims submitted by Contractor pursuant to this Agreement. Such records subject to examination shall also include, without limitation, those allocations as they may apply to costs associated with the contract. The School Board's employees, agents, or authorized representatives shall have access to the Contractor's facilities, shall have access to all necessary records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this paragraph.
16. Termination with Cause: In the event that Contractor shall for any reason or through any cause be in default of the terms of this Agreement, the School Board may give Contractor written notice of such default by certified mail/return receipt requested at the address set forth in Section 20 herein. Unless otherwise provided, Contractor shall have ten (10) days from the date such notice is mailed in which to cure the default. Upon failure of Contractor to cure the default, the School Board may immediately cancel and terminate this Agreement as of the mailing date of the default notice. Upon termination, Contractor shall withdraw its personnel and equipment, cease performance of any further work under the Agreement, and turn over to the School Board any work in process for which payment has been made. In the event of violations of law, safety or health standards and regulations, this Agreement may be immediately cancelled and terminated by the School Board, and provisions herein with respect to opportunity to cure default shall not be applicable.

17. Termination without Cause: The School Board may at any time, and for any reason, terminate this Agreement by written notice to Contractor specifying the termination date, which shall be not less than thirty (30) days from the date such notice is mailed. In the event of such termination, Contractor shall be paid such amount as shall compensate Contractor for the work satisfactorily completed, and accepted by the School Board, at the time of termination. If the School Board terminates this Agreement without cause, Contractor shall withdraw its personnel and equipment, cease performance of any further work under this Agreement, and turn over to the School Board any work completed or in process for which payment has been made.

18. Choice of Laws and Venue: This Agreement shall be governed by the provisions hereof and by the laws of the Commonwealth of Virginia, excepting the law governing conflicts of laws. Disputes arising out of this Agreement shall be resolved in the courts of the Commonwealth of Virginia in and for Albemarle County.

19. Indemnification and Hold Harmless: Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor, its subcontractors, agents, or employees under or in connection with this Agreement or the performance or failure to perform any work required by this Agreement. Contractor shall indemnify and hold harmless the School Board and its agents, volunteers, servants, employees, and officials from and against any and all claims, losses, or expenses, including reasonable attorney's fees and litigation expenses suffered by any indemnified party or entity as the result of claims or suits due to, arising out of or in connection with (a) any and all such damages, real or alleged, (b) the violation of any law applicable to this Agreement, and (c) the performance of the work by Contractor or those for whom Contractor is legally liable. Upon written demand by the School Board, Contractor shall assume and defend at Contractor's sole expense any and all such suits or defense of claims made against the School Board, its agents, volunteers, servants, employees, or officials.

20. Notices: All notices and requests required or permitted hereunder shall be sent by United States certified mail, return receipt requested, and to be effective, shall be postmarked not later than the final date for giving of such notice, or such notices may be sent by commercial messenger service, in which event, to be effective, such notices shall be delivered to a commercial messenger service not later than the final date for giving such notice.

Notices for the School Board shall be addressed as follows:

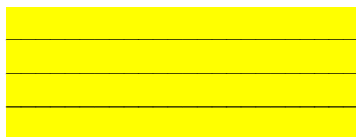


Charlottesville, VA 22902

With a copy to:

Samuel T. Winder, CPPO, CPPB
Purchasing Agent
401 McIntire Rd., Room 248
Charlottesville, VA 22902

Notices for Contractor shall be addressed as follows:



Such addresses may be changed at any time and from time to time by like written notice given by either party to the other.

21. Entire Agreement: This Agreement and the documents incorporated by reference and included expressly as Exhibits to this Agreement constitute the entire agreement between the Parties. This Agreement supersedes all prior written or oral agreements or proposals between the parties, regarding the subject matter of this Agreement. This Agreement may not be modified except in a writing signed by both parties that is expressly stated to be an amendment hereto.
22. Independent Contractor: Contractor shall be at all times an independent contractor and, as such, shall have and maintain complete control over all of its employees and operations. Neither Contractor nor anyone employed by it shall be, represent, act, purport to act, or be deemed to be an agent, representative, employee or servant of the School Board. Nothing in this section shall be deemed to absolve or otherwise limit the Contractor's liability and responsibility to safely and correctly perform its duties under this Agreement.
23. Waiver: No failure of the School Board to exercise any right or power given to it by law or by this Agreement or to insist upon strict compliance by Contractor with any of the provisions of this Agreement, and no custom or practice of the parties at variance with the terms hereof, shall constitute a waiver of the School Board's right to demand strict compliance with the terms of this Agreement.
24. Interpretation: Whenever the context hereof shall require, the singular shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.
25. Severability: The provisions of this Agreement shall be deemed to be severable, and should any one or more of such provisions be declared or adjudged to be invalid or unenforceable, the remaining provisions shall be unaffected thereby and shall remain in full force and effect.
26. Contract Claims by Contractor: Prompt knowledge by the School Board of an existing or impending claim for damages or other relief may alter the plans, scheduling, or other action of the School Board and/or result in mitigation or elimination of the effects of the claim. Therefore, a written statement providing the School Board with notice of the Contractor's intention to file a claim which (i) describes the act or omission by the School Board or its agents that the Contractor contends caused it damages or entitles it to other relief; and (ii) provides a description of the nature and amount of the claim. Such written statement shall be submitted to the Purchasing Office of the Albemarle County Department of Finance within 20 days of the time of the occurrence or beginning of the work upon which the claim is based; provided, however, if such damage is deemed certain in the opinion of the Contractor to result from its acting on an order from the School Board, it shall immediately take written exception to the order. For purposes of this provision, "claim" shall include, without limitation, any request for an increase in the Agreement price or time and any request for equitable adjustment. Submission of a notice of claim as specified shall be mandatory, and failure to submit such notice shall be a conclusive waiver to such claim for damages or other relief by the Contractor. Neither an oral notice or statement, nor an untimely notice or statement will be sufficient to satisfy the requirements herein. The School Board will review the claim and render a final decision in writing within thirty (30) days of receipt of Contractor's written request for a final decision. Such decision shall be final and binding to the fullest extent allowed by law.
27. Claims for Extra Compensation: If Contractor encounters work and services not included in this Agreement or any supplement thereto but which in the opinion of Contractor is necessary for the successful completion of the Agreement and requires extra compensation, Contractor shall, before it begins the work on which it bases its claim, promptly notify the Purchasing Office of the Albemarle County Department of Finance in writing of its intention to perform the work and to make claim for extra compensation. Notification by Contractor under the terms of this paragraph shall not be construed as proving the validity of the claim. No claim for extra compensation will be filed or considered unless notification is given as herein set forth. Upon notification, the School Board shall promptly review any claim for extra compensation. If a claim is accepted by the School Board, it

shall be paid as extra work under the terms of a supplemental agreement executed by the parties *before such work is begun*. The amounts claimed as extra compensation by Contractor shall be separately itemized, become a part of the claim, and serve as documentation thereto. The amounts itemized shall be in sufficient detail to enable the School Board to analyze the need for the extra work and the costs claimed for the work.

28. Payments to Subcontractors: Pursuant to Virginia Code Section 2.2-4354, Contractor shall pay all subcontractors, as defined in the Code, within seven (7) days after receipt of payment from the School Board; or, shall notify the School Board and the subcontractor in writing of the intention to withhold all or part of the amount due with the reason for nonpayment. In the event payment is not made as noted, the Contractor shall pay interest at the rate of one percent (1%) per month unless otherwise provided in the contract to the subcontractor on all amounts that remain unpaid after seven (7) days except for the amounts withheld as provided herein. These same requirements shall be included in each subcontract and shall be applicable to each lower-tier subcontractor. The Contractor shall provide the School Board with its social security number or federal taxpayer identification number prior to any payment being made under this Agreement.
29. Insurance: Contractor shall purchase and maintain, at its sole expense, and from a company or companies authorized to do business within the Commonwealth of Virginia, insurance policies protecting from claims which may arise out of or result from Contractor's performance or non-performance of services under this Contract or the performance or non-performance of services under this Contract by anyone directly or indirectly employed by Contractor or for whose acts it may be liable. Such policies shall remain in full force and effect at all times during the term of this Agreement and shall contain the types of coverages and minimum limits which are required by the Supplemental General Conditions, Special General Conditions, or General Conditions, which shall, for this provision "Insurance" only, take precedence (in order of precedence as listed here) over this Agreement and other documents incorporated by reference. A certificate of insurance conforming to the requirements of the Supplemental, Special, and General Conditions shall be submitted prior to the execution of this Agreement.
30. Payment/Performance Bonds: Contractor shall furnish to the School Board a payment bond and a performance bond on forms provided by the School Board in conformity with Virginia Code §§ 2.2-4337 and 2.2-4339 each payable to the School Board and each in the sum of the Agreement amount. The performance bond shall be conditioned upon the faithful performance of the Agreement in strict conformity with the terms and conditions of the Agreement, and the payment bond shall be conditioned upon the prompt payment for all such material furnished or labor supplied or performed in the prosecution of the Work. Each of the bonds shall be executed by one or more surety companies selected by Contractor which are licensed and legally authorized to conduct the business of insurance, including surety, within the Commonwealth of Virginia. The performance and payment bonds shall be amended if necessary, as determined by the School Board, to reflect changes to the scope of the Work created by Change Orders and any amendments to this Agreement.
31. School Contractor Certification: Pursuant to Virginia Code § 22.1-296.1, Contractor certifies by his signature below that any and all persons who will provide services for or on behalf of the Contractor on public school property have not been convicted of a felony; any offense involving the sexual molestation, physical or sexual abuse or rape of a child; or any offense for which registration is required as defined in Virginia Code § 9.1-902. This Certification shall be binding throughout the contract term and that it will provide immediate notice to the School Board of any event that renders this certification untrue.

Contractor hereby acknowledges that any person making a materially false statement regarding any such offense shall be guilty of a class 1 misdemeanor and, upon conviction, the fact of such conviction shall be grounds for the revocation of this Agreement and, when relevant, the revocation of any license required to provide such services.

**SCHOOL BOARD OF ALBEMARLE COUNTY,
VIRGINIA**

«COMPANY»

SIGNATURE _____

SIGNATURE _____

NAME (type/print) Samuel T. Winder, CPPB, CPPB

NAME (type/print) _____

TITLE Purchasing Agent

TITLE _____

DATE _____

DATE _____

NOTARY CERTIFICATE FOR CONTRACTOR

STATE OF _____

CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ____ day of _____, 20__, by _____, of _____, a _____ corporation, on behalf of the corporation. He/She is personally known to be or has produced _____ as proper identification.

_____ Notary Public

My Commission expires: _____

My Registration Number: _____

POST BID MODIFICATION

DATE:

PROJECT TITLE:

IFB NO.:

OWNER:

CONTRACTOR:

As allowed by Section 12(c) of the Instructions to Bidders and by §2.2-4318, Code of Virginia, negotiations were conducted with the lowest responsive and responsible bidder, _____, hereinafter called the Contractor. The following clarifications, amendments, deletions, revisions, substitutions, and/or modifications to the Contract Documents were made along with corresponding adjustments in the Contractor’s bid amount for furnishing all labor and materials and performing all work necessary for construction of this project in accordance with the modified contract documents:

Item	AMOUNT
TOTAL	

END OF POST BID MODIFICATION

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STANDARD PERFORMANCE BOND FOR CONSTRUCTION CONTRACTS

KNOW ALL BY THESE PRESENT: That _____, the Contractor (“Principal”) whose principal place of business is located at _____ and _____ (“Surety”) are held and firmly bound unto the County of Albemarle, Virginia, and/or The County School Board of Albemarle County, Virginia, the Owner (“Obligee”) in the amount of _____ for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____, entered into a contract with Obligee for _____ which contract (the “Contract”) is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided, that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of the time for the performance of the Contract, or any other alterations, extensions or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) completion of the Contract and all Work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty or guarantee if the action be for such.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the Commonwealth of Virginia.

Signed and sealed this _____ day of _____.

PRINCIPAL

BY:

(Please sign above and print name below)

TITLE:

ADDRESS:

PHONE:

SURETY (Must be signed by a Virginia Resident Agent of Surety)

BY:

(Please sign above and print name below)

ADDRESS:

PHONE:

BOND NO.:

ADDRESS OF SURETY'S HOME OFFICE:

STANDARD LABOR AND MATERIAL PAYMENT BOND

KNOW ALL BY THESE PRESENT: That _____, the Contractor (“Principal”) whose principal place of business is located at _____ and _____ (“Surety”) are held and firmly bound unto the County of Albemarle, Virginia, and/or The County School Board of Albemarle County, Virginia, the Owner (“Obligee”) in the amount of _____ for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____, entered into a contract with Obligee for _____ contract (the “Contract”) is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both for use in the performance of the Contract. A “subcontractor” of the Principal, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Principal, but also any other contractor who undertakes to participate in the Work which the Principal is to perform under the aforesaid Contract, whether there are one or more intervening subcontractors contractually positioned between it and the Principal (for example, a subcontractor). “Labor” and “material” shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.
2. Subject to the provisions of paragraph 3, any claimant who has performed labor or furnished material in accordance with the Contract documents in the prosecution of the Work provided in the Contract, who has not been paid in full therefor before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring an action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment

and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees or expenses of any such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal from whom the Principal has not required a subcontractor payment bond, but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has given written notice to the Principal within one hundred eighty (180) days from the day on which the claimant performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.
4. No suit or action shall be commenced hereunder by any claimant;
 - a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - b. Other than in a Virginia court of competent jurisdiction, with venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof is situated.
5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____, _____.

PRINCIPAL

BY:

(Please sign above and print name below)

TITLE:

ADDRESS:

PHONE:

SURETY (Must be signed by a Virginia Resident Agent of Surety)

BY:

(Please sign above and print name below)

ADDRESS:

PHONE:

BOND NO.:

ADDRESS OF SURETY'S HOME OFFICE:

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GENERAL CONTRACTOR ESTIMATE FOR CHANGE ORDER

GC-1

IFB Number:
General Contractor:
Project:
Change Description:
Owner:
COR/PCO #:

GENERAL CONTRACTOR DIRECT COSTS											
Scope Description				Direct Labor				Direct Material		Direct Equipment	
Item No.	Description	Quantity	Qty Units	Direct Labor Hours Per Unit	Total Direct Labor Hours	Hourly Wage Rate, Excl. Taxes & Ins.	Total Labor Cost	Material Cost Per Unit	Total Material Cost	Equipment Cost Per Unit	Total Equipment Cost
A	B	C	D	E	F = C x E	G	H = F x G	I	J = C x I	K	L = C x K
1.01					0.00		\$0.00		\$0.00		\$0.00
1.02					0.00		\$0.00		\$0.00		\$0.00
1.03					0.00		\$0.00		\$0.00		\$0.00
1.04					0.00		\$0.00		\$0.00		\$0.00
1.05					0.00		\$0.00		\$0.00		\$0.00
1.06					0.00		\$0.00		\$0.00		\$0.00
1.07					0.00		\$0.00		\$0.00		\$0.00
1.08					0.00		\$0.00		\$0.00		\$0.00
1.09	Subtotal from Estimate Continuation Sheets						\$0.00		\$0.00		\$0.00
1.97	Subtotal (S/T) Direct Costs:						\$0.00	Subtotal Mat'l	\$0.00	Subtotal Equip.	\$0.00
1.98	Taxes/Insurance:		FICA, FUI, SUI, & Workmens' Comp. at 			Subtotal Labor	\$0.00	Sales Tax @ 5.3%	\$0.00	Sales Tax @ 5.3%	\$0.00
1.99	Total Direct Costs					Total Labor	\$0.00	Total Mat'l	\$0.00	Total Equip.	\$0.00

SUBCONTRACT COSTS		
Item No.	Subcontractor Name (List totals from attached SC-1 forms)	Total Cost
A	B	C
2.01		
2.02		
2.03		
2.04		
2.05		
2.06		
2.07		
2.08		
2.09		
2.99	Total Subcontract Costs	\$0.00

SUMMARY			
Item No.	Description		Total Cost
3.01	Total Direct Labor Cost	Item 1.99H	\$0.00
3.02	Total Direct Material Cost	Item 1.99J	\$0.00
3.03	Total Equipment Cost	Item 1.99L	\$0.00
3.04	Subtotal	3.01+3.02+3.03	\$0.00
3.05	Overhead and Profit	* 10% x Item 3.04	\$0.00
3.06	Subtotal	3.04+3.05	\$0.00
3.07	Subcontractor Cost	Item 2.99	\$0.00
3.08	GC Markup on Subcontractors	** 10% x Item 3.07	\$0.00
3.09	Subtotal	3.06+3.07+3.08	\$0.00
3.10	Additional Bond Cost		
3.99	Total Change Order Cost	(3.09+3.10)	\$0.00

Submitted By

Name: _____

Signature: _____

Title: _____

Date: _____

I have reviewed the costs proposed and find them to be reasonable (as proposed) (as marked).

A/E Signature: _____

Note: Mark-up is capped in conformance with the provisions of Section 38(d) of the Construction Contract General Conditions.

*Limited to 10% on self-performed work.

**Limited to a total of 10%, shared (cumulative total) if multiple tier subs, on subcontracted work.

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SUBCONTRACTOR ESTIMATE FOR CHANGE ORDER

SC-1

IFB Number:
 Project:
 Owner:

General Contractor:
 Subcontractor:
 Subcontractor Trade:
 COR/PCO #:

Change Description:

SUBCONTRACTOR DIRECT COSTS												
Scope Description				Direct Labor				Direct Material		Direct Equipment		
Item No.	Description	Quantity	Qty Units	Direct Labor Hours Per Unit	Total Direct Labor Labor Hours	Hourly Wage Rate, Excl. Taxes & Ins.	Total Labor Cost	Material Cost Per Unit	Total Material Cost	Equipment Cost Per Unit	Total Equipment Cost	
A	B	C	D	E	F = C x E	G	H = F x G	I	J = C x I	K	L = C x K	
1.01					0.00		\$0.00		\$0.00		\$0.00	
1.02					0.00		\$0.00		\$0.00		\$0.00	
1.03					0.00		\$0.00		\$0.00		\$0.00	
1.04					0.00		\$0.00		\$0.00		\$0.00	
1.05					0.00		\$0.00		\$0.00		\$0.00	
1.06					0.00		\$0.00		\$0.00		\$0.00	
1.07					0.00		\$0.00		\$0.00		\$0.00	
1.08					0.00		\$0.00		\$0.00		\$0.00	
1.09	Subtotal from Estimate Continuation Sheets						\$0.00		\$0.00		\$0.00	
1.97	Subtotal (S/T) Direct Costs:					Subtotal Labor	\$0.00	Subtotal Mat'l	\$0.00	Subtotal Equip.	\$0.00	
1.98	Taxes/Insurance: FICA, FUI, SUI, & Workmens' Comp. at 25.00%					% of Item 1.97H	\$0.00	Sales Tax @ 5.3%	\$0.00	Sales Tax @ 5.3%	\$0.00	
1.99	Total Direct Costs					Total Labor	\$0.00	Total Mat'l	\$0.00	Total Equip.	\$0.00	

SUB-SUBCONTRACT COSTS		
Item No.	Sub-Subcontractor Name (List totals from attached SS-1 forms)	Total Cost
A	B	C
2.01		
2.02		
2.03		
2.04		
2.05		
2.06		
2.99	Total Sub-Subcontract Costs	\$0.00

SUMMARY			
Item No.	Description		Total Cost
3.01	Total Direct Labor Cost	Item 1.99H	\$0.00
3.02	Total Direct Material Cost	Item 1.99J	\$0.00
3.03	Total Equipment Cost	Item 1.99L	\$0.00
3.04	Subtotal	3.01+3.02+3.03	\$0.00
3.05	Overhead and Profit	* 10% x Item 3.04	\$0.00
3.06	Total Subcontractor Cost	3.04+3.05	\$0.00
3.07	Sub-Subcontractor Cost **	Item 2.99	\$0.00
3.99	S/C Cost Report'd to GC ***	3.06+3.07	\$0.00

Submitted By

Name: _____

Signature: _____

Title: _____

Date: _____

Note: Mark-up is capped in conformance with the provisions of Section 38(d) of the Construction Contract General Conditions.
 * Limited to 10% on self-performed work.
 ** Limited to a total of 10%, shared (cumulative total) if multiple tier subs, on subcontracted work. Total mark-up on subcontracted work is calculated on the GC-1 form.
 *** The subcontractor cost carried forward to GC-1 form does not include mark-up on sub-subcontractor costs. This mark-up is calculated on the GC-1 form. The GC and its subcontractors shall establish how the mark-up is to be distributed among the various subcontractors involved in the work.

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SUB-SUBCONTRACTOR ESTIMATE FOR CHANGE ORDER

SS-1

IFB Number:
 Project:
 Owner:

General Contractor:
 Subcontractor:
 Sub-Subcontractor:
 Sub-Subcontractor Trade:
 COR/PCO #:

Change Description:

SUB-SUBCONTRACTOR DIRECT COSTS											
Scope Description				Direct Labor				Direct Material		Direct Equipment	
Item No.	Description	Quantity	Qty Units	Direct Labor Hours Per Unit	Total Direct Labor Labor Hours	Hourly Wage Rate, Excl. Taxes & Ins.	Total Labor Cost	Material Cost Per Unit	Total Material Cost	Equipment Cost Per Unit	Total Equipment Cost
A	B	C	D	E	F = C x E	G	H = F x G	I	J = C x I	K	L = C x K
1.01					0.00		\$0.00		\$0.00		\$0.00
1.02					0.00		\$0.00		\$0.00		\$0.00
1.03					0.00		\$0.00		\$0.00		\$0.00
1.04					0.00		\$0.00		\$0.00		\$0.00
1.05					0.00		\$0.00		\$0.00		\$0.00
1.06					0.00		\$0.00		\$0.00		\$0.00
1.07					0.00		\$0.00		\$0.00		\$0.00
1.08					0.00		\$0.00		\$0.00		\$0.00
1.09	Subtotal from Estimate Continuation Sheets						\$0.00		\$0.00		\$0.00
1.97	Subtotal (S/T) Direct Costs:					Subtotal Labor	\$0.00	Subtotal Mat'l	\$0.00	Subtotal Equip.	\$0.00
1.98	Taxes/Insurance: FICA, FUI, SUI, & Workmens' Comp. at 					% of Item 1.97H	\$0.00	Sales Tax @ 5.3%	\$0.00	Sales Tax @ 5.3%	\$0.00
1.99	Total Direct Costs					Total Labor	\$0.00	Total Mat'l	\$0.00	Total Equip.	\$0.00

SUMMARY		
Item No.	Description	Total Cost
3.01	Total Direct Labor Cost Item 1.99H	\$0.00
3.02	Total Direct Material Cost Item 1.99J	\$0.00
3.03	Total Equipment Cost Item 1.99L	\$0.00
3.04	Subtotal 3.01+3.02+3.03	\$0.00
3.05	Overhead and Profit * 10% x Item 3.04	\$0.00
3.99	Total Sub-Subcontractor	\$0.00

Submitted By

Name: _____

Signature: _____

Title: _____

Date: _____

Note: Mark-up is capped in conformance with the provisions of Section 38(d) of the Construction Contract General Conditions.
 *Limited to 10% on self-performed work.

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FORM AC-12	SCHEDULE OF VALUES and CERTIFICATE FOR PAYMENT	PAYMENT REQUEST NO.	1
PART A SUMMARY AND CERTIFICATION		PERIOD BEGINNING DATE:	01/00/1900
		PERIOD ENDING DATE:	01/00/1900



IFB NUMBER: 0
OWNER NAME: County of Albemarle, Virginia and/or The County School Board of Albemarle County, Virginia
PROJECT TITLE: 0

	TOTAL VALUE	VALUE OF WORK COMPLETED			PERCENT COMPLETE
		PREVIOUS VALUE TO DATE	VALUE THIS REPORT	CURRENT VALUE TO DATE	
	A	B	C	D = B + C	E = D / A
Original Contract Line Items (from AC-12, PART B)	\$ -	\$ -	\$ -	\$ -	0%
Approved Change Orders (from AC-12, PART C)	\$ -	\$ -	\$ -	\$ -	0%
ADJUSTED CONTRACT TOTAL	\$ -	\$ -	\$ -	\$ -	0%
Retainage <i>Retainage Percentage: 5.0%</i>		\$ -	\$ -	\$ -	
NET REQUISITION AMOUNT		\$ -	\$ -	\$ -	

Amount Requested

CONTRACTOR CERTIFICATION

The undersigned Contractor requests payment of that portion of the contract price shown on the last line of the foregoing Schedule of Values, and represents and warrants to the Owner that: (1) the data shown on the Schedule of Values is accurate and correct; (2) the Work covered by this Certificate has been completed in accordance with the Contract Documents; (3) all previous progress payments received from Owner on account of Work done under this Contract have been applied to discharge in full (except for allowable retainage) all obligations of Contractor incurred in connection with Work covered by prior Certificates for Payment (N/A for Payment No. 1) ; (4) title to all materials and equipment for which payment is requested in this Certificate, whether or not incorporated in said Work, will pass to Owner at time of payment free and clear of all liens, claims, security interests and encumbrances (except such materials and equipment which are covered by a Bond previously accepted by Owner).

FEIN #: 0

Contractor: 0

Date: January 0, 1900

By: _____
signature

Typed Name: 0

ARCHITECT/ENGINEER CERTIFICATION

This is to certify that, in accordance with the terms of a contract for IFB/Contract Number executed the day of , , by and between, , the Contractor, and the County of Albemarle, Virginia and/or The County School Board of Albemarle County, Virginia, the Owner, for work at , there is due to the Contractor the amount of No Dollars and No Cents \$.00

Architect/Engineer:

By: _____
signature _____ *printed name* _____ *date* _____

OWNER ACTION

Recommended for Payment: _____
Project Manager Date

ITEM NO.	ITEM DESCRIPTION	TOTAL VALUE	VALUE OF WORK COMPLETED			PERCENT COMPLETE	NOTES / COMMENTS
			PREVIOUS VALUE TO DATE	VALUE THIS REPORT	CURRENT VALUE TO DATE		
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
	Do not insert rows below this point !	\$ -	\$ -	\$ -	\$ -	0%	
TOTAL ORIGINAL CONTRACT		\$ -	\$ -	\$ -	\$ -	0%	

CHNG ORD. NO.	ITEM DESCRIPTION	TOTAL VALUE	VALUE OF WORK COMPLETED			PERCENT COMPLETE	NOTES / COMMENTS
			PREVIOUS VALUE TO DATE	VALUE THIS REPORT	CURRENT VALUE TO DATE		
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
		\$ -	\$ -	\$ -	\$ -	0%	
	Do not insert rows below this point !	\$ -	\$ -	\$ -	\$ -	0%	
TOTAL APPROVED CHANGE ORDERS		\$ -	\$ -	\$ -	\$ -	0%	

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AFFIDAVIT OF PAYMENT OF CLAIMS

By:

This day _____ personally appeared before me, _____, a Notary Public in and for the City/County of _____, _____ and, being by me first duly sworn, states that all subcontractors and suppliers of labor and materials have been paid all sums due them for work performed or materials furnished in the performance of the Contract between the County of Albemarle, Virginia, and/or The County School Board of Albemarle County, Virginia, Owner, and _____, Contractor, dated _____, 20____, for the construction of _____, or arrangements have been made by the Contractor satisfactory to such subcontractors and suppliers with respect to payments of such sums as may be due them by the Contractor.

(Contractor Name)

By: _____

Print Name: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20____.

My commission expires on the _____ day of _____, 20____.

Notary Registration #: _____

Notary Public

ARCHITECT/ENGINEER'S CERTIFICATE OF SUBSTANTIAL COMPLETION

Date: _____

County of Albemarle, Virginia, and/or
The County School Board of Albemarle County, Virginia
c/o Facilities & Environmental Services – Project Management Division
401 McIntire Road
Charlottesville, Virginia 22902-4596

Project Title: _____

RFQ/Contract No.: _____

In accordance with the requirements of the Contract Between Owner and Architect/Engineer and based upon the knowledge gained in the performance of the architectural/engineering services provided in said Contract and the reports of the Owner's Inspection and Testing entities, the undersigned Architect/Engineer states that the following portions of the project named above are substantially complete in accordance with the requirements of the Contract Documents and are recommended for use of their intended purpose (*indicate portions which are ready for use and, if applicable, occupancy*):

All applicable tests, certificates and regulatory inspections required by the Contract Documents and any local, state or federal regulations have been performed with respect to the substantially completed portions of the project and the Owner has been provided with a copy of each report, except for the following:

A tentative list of unfinished Work and defective Work, referred to as the "punch list," is attached hereto. The list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by the Contractor within _____ days of the above date of Substantial Completion.

(A/E Firm Name)

By: _____

Print Name: _____

Title: _____

Attachment: Punch List

CERTIFICATE OF FINAL COMPLETION BY ARCHITECT/ENGINEER

Date: _____

County of Albemarle, Virginia, and/or
The County School Board of Albemarle County, Virginia
c/o Facilities & Environmental Services – Project Management Division
401 McIntire Road
Charlottesville, Virginia 22902-4596

Project Title: _____

RFQ/Contract No.: _____

In accordance with the requirements of the Contract Between the Owner and the Architect/Engineer for Professional Services and based upon the knowledge gained in the performance of the services required in said Agreement, the undersigned hereby states that the above named project was fully completed in accordance with the requirements of the Contract Documents on _____ (Month) _____ (Day), _____ (Year).

All applicable tests, certificates and regulatory inspections required by the Contract Documents and any local, state or federal regulations have been performed and the Owner has been provided with a copy of each report.

Final as-built drawings have been prepared by the Architect/Engineer and submitted to the Owner in accordance with the requirements of the Contract Documents. The Owner has been provided with a copy of all warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents.

(A/E Firm Name)

By: _____

Print Name: _____

Title: _____

CERTIFICATE OF PARTIAL OR SUBSTANTIAL COMPLETION BY CONTRACTOR

Date: _____

County of Albemarle, Virginia, and/or
The County School Board of Albemarle County, Virginia
c/o Facilities & Environmental Services – Project Management Division
401 McIntire Road
Charlottesville, Virginia 22902-4596

Project Title: _____
RFQ/Contract No.: _____

In accordance with the requirements of the Agreement between the Owner and the Contractor, the undersigned Contractor hereby states that portions of the above named project are substantially completed in accordance with the requirements of the Contract Documents as modified by approved change orders. Those portions of the project now substantially complete are:

All applicable tests, certificates and regulatory inspections required by the Contract Documents and any local, state or federal regulations have been performed with respect to the substantially completed portions of the project and the Owner has been provided with a copy of each report.

As-built marked up prints of the substantially completed portions of the project have been provided to the Architect/Engineer as required by the Contract Documents.

The Owner has been provided with a copy of all warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents with respect to the completed portions of the project, except as follows:

All training, operating instructions and maintenance manuals required by the Contract Documents have been provided to the Owner, except as follows:

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR’S obligation to complete the Work in accordance with the Contract Documents.

(Contractor Name)

By: _____

Print Name: _____

Title: _____

CERTIFICATE OF FINAL COMPLETION BY CONTRACTOR

Date: _____

County of Albemarle, Virginia, and/or
The County School Board of Albemarle County, Virginia
c/o Facilities & Environmental Services – Project Management Division
401 McIntire Road
Charlottesville, Virginia 22902-4596

Project Title: _____

RFQ/Contract No.: _____

In accordance with the requirements of the Contract Between Owner and Contractor (Form AC-9) the undersigned Contractor hereby states that the above named project has been fully completed in accordance with the requirements of the Contract Documents as modified by approved change orders.

All applicable tests, certificates and regulatory inspections required by the Contract Documents and any local, state or federal regulations have been performed with respect to the completed project and the Owner has been provided with a copy of each report.

As-built marked up prints of the completed project have been provided to the Architect/Engineer as required by the Contract Documents.

The Owner has been provided with a copy of all warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents.

All training, operating instructions and maintenance manuals required by the Contract Documents have been provided to the Owner.

(Contractor Name)

By: _____

Print Name: _____

Title: _____

Copy: Architect/Engineer

SECTION 01-1010
SUMMARY OF WORK

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. The drawings and the Contractor's Agreement with the Owner, and Division 01 specification sections, apply to this Section.

1.2 PROJECT DESCRIPTION

- A. The Project is identified as "Greer Elementary School Generator", as shown on Contract Documents prepared by 2RW Consultants, Inc.
- B. This is a generator and emergency electrical systems installation project. The work consists of the installation of a new diesel generator and automatic transfer switches and associated panels and connections to emergency equipment. The owner will furnish the generator, automatic transfer switches and remote annunciator and the contractor will install all equipment.

1.3 WORK UNDER THIS CONTRACT

- A. Generally, the Work under the Contract shall include all work as indicated on drawings and specified herein. All Work so indicated and specified shall be executed under one contract.
- B. Furnish all labor, materials, tools, equipment and services for all of the Work as indicated, in accord with provisions of Contract Documents.
- C. Completely coordinate with all other trades.
- D. Even if not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.4 PROVISIONS OF WORK

- A. Site Investigation:
 - 1. The Contractor acknowledges that it has satisfied itself as to the nature and location of the Work, the general and local conditions, including but not restricted to those bearing upon the transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, flood plains or similar types of physical conditions at the site, the site the conformation and conditions of the round, the existing building, the character of equipment and facilities needed preliminarily to and during prosecution of the Work.
 - 2. The Contractor further acknowledges that it has satisfied itself as to the character, quality and quality of surface and subsurface materials or obstacles to be encountered insofar as its information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from information presented by the Drawings and Specifications made a part of the Contract. Any failure by the Contractor to acquaint itself with the available information will not relieve it of the responsibility for estimating properly the difficulty or cost of successfully performing the Work. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the Owner.

1.5 CONTRACTOR USE OF PREMISES

- A. General: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.
- B. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

- C. Keep driveways, entrances, and parking areas serving the premises clear and available to the Owner and the Owner's employee's at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
 - D. Utility Interruptions: A proposed schedule of all activities involving the interruption of active utility service to the existing building, if any, shall be submitted to the Owner at least two (2) weeks before the action so that a mutually agreed schedule can be determined before the Work is undertaken.
 - E. Hours of Work: Work shall be performed on-site during times permitted by local jurisdictions ordinances. It is the Contractors responsibility to determine and comply with these requirements.
- 1.6 PROJECT SCHEDULING
- A. The Contractor shall prepare and submit a construction schedule in accordance with Section 01 3300 - Submittal Procedures.
- 1.7 PROJECT MEETINGS
- A. Pre Construction Conference:
 - 1. Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.
 - 2. Attendees: The Owner, Engineer, the Contractor and its superintendents, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect progress including such topics as these:
 - a. Tentative Construction Schedule
 - b. Critical Work Sequencing
 - c. Designation of responsible personnel
 - d. Procedures for processing field decisions and Change Orders
 - e. Procedures for processing Applications for Payment
 - f. Distribution of Contract Documents
 - g. Submittals of Shop Drawings, Product Data and Samples
 - h. Use of the premises
 - i. Office, Work and storage areas
 - j. Equipment deliveries and priorities
 - k. Safety procedures
 - l. First aid
 - m. Security
 - n. Working Hours
 - B. Progress Meeting:
 - 1. Conduct progress meetings at the Project site at regular scheduled intervals, not to exceed once a week. Notify the Owner and Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

2. Attendees: In addition to representatives of the Owner and Engineer, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to the progress.
3. Agenda: review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project. Review present and future needs of each entity present.
 - a. Contractor's Construction Schedule: Review progress since last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind 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.
4. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED
END OF SECTION

SECTION 01-1400
WORK RESTRICTIONS

PART 1 GENERAL

1.1 CONCURRENT OWNER OCCUPANCY

- A. The Contractor shall be responsible to assure that school operations are not adversely affected as a result of construction activities or the presence of contractor equipment, materials, or scaffolding. This requirement shall encompass air quality and lighting, dust, noise, and appropriate securing or storage of equipment and materials within the school. It is the responsibility of the contractor to notify, coordinate, and acquire the approval of the Owner's Construction Administration Manager for any and all construction activities, equipment, scaffolding, and materials that will be present in the school during periods of school operations.
- B. Partial Occupancy
 - 1. The Owner intends to occupy the building during the normal school operations.
 - 2. Contractor shall schedule and substantially complete designated portions of Work for occupancy prior to Substantial Completion of entire Work. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Continued Occupancy - Adjacent Areas
 - 1. Certain areas will be occupied during entire construction period for conduct of normal operations.
 - 2. Contractor shall cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage. Perform Work so as not to interfere with operations of occupied areas. Ingress and egress for students, staff and support services must be continuously maintained.

1.2 CONTRACTOR USE OF SITE AND PREMISES

- A. Emergency Building Exits: Maintain existing emergency exits during construction.
- B. Work in Occupied Areas is Required:
 - 1. The Contractor shall schedule Work to avoid interference with normal operations of occupied areas. Submit schedule and summary of applicable Work within occupied areas and obtain Owner approval not less than seven (7) days prior to commencement of such Work.
- C. Contractor shall coordinate with the Owner access to and security of existing mechanical and electrical equipment spaces.
- D. Staging Areas: To be addressed at the Pre-Bid Meeting.

1.3 OPERATIONS OUTSIDE CONSTRUCTION LIMITS

- A. Use of certain passageways and other areas, outside of defined limits of operation, will be granted on an as needed basis. Requests must be made in writing at least seven (7) days in advance.
- B. The Contractor shall comply with designated travel paths, staging areas, dumpster locations, and other restricted items indicated on Drawings.
- C. Occupied Owner buildings and grounds, including the construction limits, are a non-smoking environment.

1.4 WORK SITE PROTECTION

- A. Provided by Contractor as follows:
 - 1. Padding in elevators and at corridor walls when there is a possibility of damage.
 - 2. Minimum 1/4 inch thick hardboard protection at carpeted areas when they will be subject to heavy rolling loads.

3. No traffic on lawn and landscaped areas.

B. Hot Works Operations

1. The Contractor shall follow all Virginia Occupational Safety and Health (VOSH) standards/regulations on Hot Works operations and is subject to VOSH inspections.

Contractors certify that they have a Hot Works program in place with proper oversight that includes recognition of the risk of after-hours ignition from Hot Work and the requirement for a fire watch.

C. Blasting

1. Blasting is strictly prohibited on the property.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01-2500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

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

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of Architect/Engineers and Owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated

results.

2. Architect/Engineer's Action: If necessary, Architect/Engineer will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect/Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 5 days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect/Engineer's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect/Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

- A. Compatibility Of Substitutions: Investigate And Document Compatibility Of Proposed Substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 1. Conditions: Architect/Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed unless otherwise indicated.

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01-2600
CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect/Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect/Engineer are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 14 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect/Engineer.
- B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect/Engineer.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 01-2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 7. Work Change Proposal Request Form: Use form acceptable to Architect/Engineer.
- 1.4 CHANGE ORDER PROCEDURES
- A. On Owner's approval of a Work Changes Proposal Request, Architect/Engineer will issue a Change Order for signatures of Owner.
- 1.5 CONSTRUCTION CHANGE DIRECTIVE
- A. Construction Change Directive: Architect/Engineer may issue a Construction Change Directive. Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
 2. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01-3100
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Administrative and supervisory personnel.
 - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 01 Section 01-3200 "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
 - 2. Division 01 Section 01-7000 "Contract Closeout" and Section 01-7800 "Closeout Submittals" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Pre-installation conferences.
 - 7. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 COORDINATION DRAWINGS

- A. Delete requirements for coordination drawings in "Coordination Drawings, General" Paragraph below if installation is completely shown and adequately coordinated on Shop Drawings prepared by a single fabricator. Coordinate with individual Sections.
- B. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect/Engineer indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- C. Coordination Drawing Organization: Organize coordination drawings as follows:
 - 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
 - 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.
 - 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 - 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 - 5. Review: Architect/Engineer will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

1.5 SUBMITTALS

- A. Staff Resumes: At least 7 days prior to the pre-construction meeting, submit a resume for each principal staff member who will work on the project, including the Project Manager, Superintendent(s) Field Engineer and Office Engineer. The Owner reserves the right to reject any staff member and request new resume submissions. Resumes shall include the following:
 - 1. Duties and Responsibilities related to this Project.
 - 2. Educational Background.
 - 3. Length of time with the Contractor's company and past work experience with an outline of responsible positions held.
- B. Schedule of Pre-Installation Conferences: Prior to commencement of on-site construction activities, submit in writing to the Architect/Engineer and Owner a comprehensive schedule of all preinstallation conferences to be conducted during the course of the project. Each conference will be scheduled to coincide with a regularly scheduled jobsite progress meeting.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

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

1.7 REQUESTS FOR INFORMATION (RFI'S)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect/Engineer will return RFIs submitted to Architect/Engineer by other entities controlled by Contractor with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect/Engineer.
 - 6. RFI number, numbered sequentially.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Forms: Email-generated with the same content as indicated above, acceptable to Architect/Engineer. Architect/Engineer will respond electronically.
- D. Architect/Engineer's Action: Architect/Engineer will review each RFI, determine action required, and respond. Allow five (5) working days for Architect/Engineer's response for each RFI. RFIs received by Architect/Engineer after 1:00 p.m. will be considered as received the following working day.
 - 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect/Engineer's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect/Engineer's action may include a request for additional information, in which case Architect/Engineer's time for response will date from time of receipt of additional information.

3. Architect/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 Section 01-2600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect/Engineer in writing within 10 days of receipt of the RFI response.
 - E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly. Include the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect/Engineer.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect/Engineer's response was received.
 - F. On receipt of Architect/Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect/Engineer within five (5) working days if Contractor disagrees with response.
- 1.8 PROJECT MEETINGS
- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect/Engineer of scheduled meeting dates and times.
 2. Agenda: Prepare outline of issues to be discussed and distribute to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including the Owner and Architect/Engineer, within (3) days of the meeting.
 - B. Pre-construction Meeting: The pre-construction meeting shall be held at a convenient location prior to the commencement of construction activities, at a time convenient to Owner, Contractor, and Architect/Engineer. The meeting will be conducted to review responsibilities and personnel assignments as follows:
 1. Attendees: Authorized representatives of Owner, Architect/Engineer, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the pre-construction conference shall be familiar with Project and authorized to conclude matters relating to the Work. The Contractor shall conduct the meeting.
 2. Agenda: Review items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.

- g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.
 - s. Requirements, attendance and schedule for site mobilization meeting.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Meetings: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect/Engineer of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.

- v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at bi-monthly intervals, except where it is determined that more frequent meetings are essential to the nature of the project. Coordinate dates of meetings with preparation of payment requests and at times convenient and acceptable to Owner and Architect/Engineer. The meetings will take place at the Project site.
1. Attendees: 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. Participants 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: Contractor will review the progress since the last meeting, determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Work hours.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Progress cleaning.
 - 11) Quality and work standards.
 - 12) Status of correction of deficient items.
 - 13) Field observations.
 - 14) Status of RFIs.

- 15) Status of proposal requests.
 - 16) Pending changes.
 - 17) Status of Change Orders.
 - 18) Pending claims and disputes.
 - 19) Documentation of information for payment requests.
3. Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - 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. Coordination Meetings: Conduct project coordination meetings at regular intervals convenient to all parties involved if there is more than one contractor on site. Project coordination meetings are in addition to specific meetings held for other purposes, but should be scheduled to coincide with the dates for progress meetings and pre-installation conferences. The Contractor will advise Owner and Architect/Engineer of scheduled meeting dates.
 1. Attendees: 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. Representatives of Owner and Architect/Engineer may attend. 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 the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.

- 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.
- 1.9 COMMUNICATION
- A. Communication of questions from the Contractor to the Architect/Engineer during construction shall be via the standard Request for Information form (or similar).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01-3200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Contractor's construction schedule.
 2. Construction schedule updating reports.
 3. Daily construction reports.
 4. Site condition reports.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
1. Working electronic copy of schedule file, where indicated.
 2. PDF electronic file.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- C. Construction Schedule Updating Reports: Submit with Applications for Payment.
- D. Daily Construction Reports: Submit at monthly intervals.
- E. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

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

PART 2 PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.
- B. Activities: Treat each separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Section 01-3300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 2. Work Stages: Indicate important stages of construction for each major portion of the Work.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule.
- 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)
- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for commencement of the Work
 - B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
- 2.3 REPORTS
- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.

4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Accidents.
 8. Meetings and significant decisions.
 9. Unusual events.
 10. Stoppages, delays, shortages, and losses.
 11. Meter readings and similar recordings.
 12. Emergency procedures.
 13. Orders and requests of authorities having jurisdiction.
 14. Change Orders received and implemented.
 15. Construction Change Directives received and implemented.
 16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial completions and occupancies.
 19. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect/Engineer, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01-3233
PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
- B. Related Requirements:
 - 1. Section 01-7000 "Contract Closeout" for submitting photographic documentation as Project Record Documents at Project closeout.

1.2 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph . Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit unaltered, original, full-size image files within three days of taking photographs.
 - 1. Digital Camera: Minimum sensor resolution of 8 megapixels.
 - 2. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Date photograph was taken.
 - d. Description of vantage point, indicating location, direction (by compass point), and elevation of construction.

1.3 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

1.4 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, with minimum size of 8 megapixels.

PART 3 EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.

2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.
- D. Preconstruction Photographs: Before commencement of work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
1. Flag construction limits before taking construction photographs.
 2. Take photographs to show existing conditions adjacent to property before starting the Work.
 3. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
- E. Periodic Construction Photographs: Take photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

END OF SECTION

SECTION 01-3300
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Section 01-3200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 2. Section 01-7200 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 3. Section 01-7900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect/Engineer and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect/Engineer's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Architect/Engineer for Contractor's use in preparing submittals.
 - 1. Architect/Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect/Engineer.
- 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.
 - a. Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows.
Time for review shall commence on Architect/Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect/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. Resubmittal Review: Allow 15 days for review of each resubmittal.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Name file with submittal number or other unique identifier, including revision identifier.
 - a. Revise first subparagraph below to suit Project and office practice.
 - b. File name shall use project identifier and Specification Section number followed by a hyphen and then a sequential number (e.g., HBW-061000-01). Resubmittals shall include an addition sequential after another hyphen (e.g., HBW-061000-01-01).
 2. Requirement in first subparagraph below can be performed using PDF publishing software.
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect/Engineer.
 4. Transmittal Form for Electronic Submittals: Use an electronic form suitable to the Architect/Engineer, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect/Engineer.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Indication of full or partial submittal.
 - o. Transmittal number.
 - p. Submittal and transmittal distribution record.
 - q. Other necessary identification.
 - r. Remarks.
- E. Options: Identify options requiring selection by Architect/Engineer.
- F. Deviations: Identify deviations from the Contract Documents on submittals.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect/Engineer's action stamp.
- H. 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.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect/Engineer's action stamp.

PART 2 PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
1. Post electronic submittals as PDF electronic files directly to Architect/Engineer's electronic site specifically established for Project.
 2. Submit electronic submittals via email as PDF electronic files.
 3. Action Submittals: Submit each submittal unless otherwise indicated. Architect/Engineer will return marked copies.
 4. Informational Submittals: Submit each submittal unless otherwise indicated. Architect/Engineer will not return copies.
 5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.

- d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect/Engineer's digital data drawing files is otherwise permitted.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

- a. Number of Samples: Submit one (1) full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect/Engineer, through Construction Manager, will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of samples. Architect/Engineer will retain one sample sets; remainder will be returned. Mark up and retain one returned sample set as a project record sample.
 - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Coordination Drawings Submittals: Comply with requirements specified in Section 01-3100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 01-3200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01-7000 "Contract Closeout".
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01-4000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01-7800 "Closeout Submittals."
- K. Maintenance Data: Comply with requirements specified in Section 01-7800 "Closeout Submittals."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Architect/Engineers and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 - Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
 - S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
 - T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
 - U. Schedule of Tests and Inspections: Comply with requirements specified in Section 01-4000 "Quality Requirements."
 - V. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
 - W. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
 - X. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 - Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- 2.2 DELEGATED-DESIGN SERVICES
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect/Engineer.
 - B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and one paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect/Engineer.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01-7000 "Contract Closeout" and Section 01-7800 "Closeout Submittals."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT/ENGINEER'S ACTION

- A. General: Architect/Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect/Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect/Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect/Engineer will forward each submittal to appropriate party.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01-4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

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

1.2 SUBMITTALS

- A. Test Reports: After each test/inspection, promptly submit two copies of report to Architect/Engineer and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Architect/Engineer, provide interpretation of results.
 - 2. Test report submittals are for Architect/Engineer's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
- B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect/Engineer, in quantities specified for Product Data.
 - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- D. Manufacturer's Field Reports: Submit reports for Architect/Engineer's benefit as contract administrator or for Owner.
 - 1. Submit report in duplicate within 30 days of observation to Architect/Engineer for information.
 - 2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents.

1.3 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect/Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's

products that are similar in material, design, and extent to those indicated for this Project.

- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - d. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect/Engineer, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- 1.5 QUALITY CONTROL
- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
 - B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 - C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect/Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect/Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.

- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
 - G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.
- 3.2 TESTING AND INSPECTION
- A. Testing Agency Duties:
 - 1. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Architect/Engineer and Contractor of observed irregularities or non-compliance of Work or products.
 - 5. Perform additional tests and inspections required by Architect/Engineer.
 - 6. Submit reports of all tests/inspections specified.
 - B. Limits on Testing/Inspection Agency Authority:
 - 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency may not approve or accept any portion of the Work.
 - 3. Agency may not assume any duties of Contractor.
 - 4. Agency has no authority to stop the Work.
 - C. Contractor Responsibilities:
 - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 - 2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
 - 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 - 4. Notify Architect/Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 - 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
 - D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect/Engineer.
 - E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.
- 3.3 MANUFACTURERS' FIELD SERVICES
- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.

- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.4 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

SECTION 01-5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 TEMPORARY MATERIALS

- A. Temporary materials may be new or used, but must be adequate in capacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

1.2 PROTECTION OF INSTALLED WORK

- A. Protect installed Work in a manner to prevent damage from construction operations.
- B. Provide special protection as detailed in individual Specification sections.
- C. Provide temporary and removable materials for protection of installed products and to control activity in the immediate Work area to minimize damage.
- D. Protect finished Work from damage, defacement, stains, scratches, and wear.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary upon such surfaces, the Contractor shall obtain recommendations for protection from the weatherproofing or roofing material manufacturer.
- F. Prohibit traffic on lawn and landscaped areas.

1.3 TEMPORARY INSTALLATIONS

- A. Install, maintain, and operate temporary utilities and services to ensure continuous operation, and modify and extend such temporary systems as Work progresses.
- B. Install temporary facilities and controls in a manner that produces a uniform appearance, that is structurally adequate for the required purposes, and that is properly maintained.
- C. Modify and relocate temporary facilities and controls as necessary to accommodate progress of Work.

1.4 CLEANING, REMOVAL, AND RESTORATION

- A. Maintain the construction site in a clean and orderly manner; provide for routine removal of trash and construction debris; provide appropriate waste receptacles and containers on site; and remove all such receptacles and containers prior to Substantial Completion inspection.
- B. Remove all temporary above grade or buried utilities, equipment, facilities, controls, and materials prior to Substantial Completion inspection.
- C. Repair damage caused by installation or use of temporary Work.
- D. Restore existing facilities and equipment used during construction to original condition.

END OF SECTION

SECTION 01-5100
TEMPORARY UTILITIES

PART 1 GENERAL

1.1 ELECTRICITY AND LIGHTING

- A. Owner Supplied Utilities: Owner will provide the Contractor with electricity for construction use. The Contractor is responsible for coordinating Work related electrical requirements and protecting the building within the limits of available electrical power, without compromising the Owner's need for electricity. The Contractor is responsible for energy conservation and reasonable construction use of electrical power. The Contractor shall pay for additional power above the reasonable amount if the Owner determines the Contractor is using an unreasonable or excessive amount of electricity. If the Contractor's use of electricity required for Work exceeds the limits of available power in the building the Contractor shall reduce power consumed and/or pay for such modifications as required to eliminate any electrical need that may compromise the Owner's system.
- B. Contractor shall provide electrical service sized to provide adequate temporary power and lighting.
- C. Contractor shall provide a branch distribution system from the temporary power source with distribution boxes and outlets located so that power and lighting is available throughout active Work areas.
- D. Permanent receptacles may be utilized during construction.
- E. Existing receptacles may be utilized as a source of temporary electric service for remodeling Work within an existing building.
- F. Contractor shall replace receptacle plates and wiring devices damaged during construction.
- G. Contractor shall provide lighting to ensure safe construction operations and to allow proper finishing operations.
- H. Permanent lighting systems may be utilized during construction.
- I. Existing lighting system may be utilized for temporary lighting for remodeling Work within an existing building.
- J. Contractor shall: restore permanent (and/or existing) lighting systems used during construction to new (and/or original) condition; replace defective fixtures, controls, and other component parts and; clean fixtures and replace lamps. Lighting shall not be directed skyward.
- K. All temporary wiring shall be removed before completion of project.

1.2 HEATING, COOLING, AND VENTILATING

- A. Owner Supplied Utilities: Owner will provide the Contractor with existing source(s) of heating and/or cooling for construction use. The Contractor is responsible for coordinating Work related heating and/or cooling requirements and protecting the building within the limits of available heating and/or cooling resources, without compromising the Owner's need for heating and/or cooling and/or the effectiveness of existing building systems to serve existing occupants. The Contractor is responsible for energy conservation and reasonable construction use of heating and/or cooling systems. The Contractor shall pay for additional energy consumption above the reasonable amount if the Owner determines that the Contractor has used an unreasonable or excessive amount of energy. Should the Contractor's use of additional energy required for Work exceed the limits of available resources in the building the Contractor shall reduce energy consumed and/or pay for such modifications as required to eliminate compromising the Owner's system.

- B. Use of permanent HVAC and associated distribution systems will be permitted only upon meeting the following requirements:
 - 1. Verification that the installation has been approved for operation, equipment is lubricated, and filters are in place.
 - 2. Verification that reasonable closures from the external environment exist.
 - 3. Equipment has been installed completely with accessories, started-up, maintained, serviced, and operated in strict accordance with manufacturer's instructions.
 - C. Should the above HVAC permit be issued:
 - 1. Contractor is responsible for providing and paying for replacement of filters and worn or consumed parts.
 - 2. Operation of permanent systems or any portion thereof to provide temporary heat/ventilation does not constitute acceptance of system or such portion thereof.
 - 3. The time period contained in warranties for heating/ventilating systems shall begin on date of Substantial Completion as certified by A/E and shall not begin on date of use, unless such date is certified by A/E as date of Substantial Completion.
 - 4. Immediately before Substantial Completion, the Contractor shall completely clean each permanent unit used, install new filters, and perform service functions required for placing units in use and qualifying for specified warranties.
 - D. Ventilate enclosed areas to assist in the curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
 - E. No permanent HVAC system shall be operated without the permanent filters and/or strainers in place. Upon Substantial Completion, all filters and/or strainers shall be replaced with new filter/strainers. All temporary filters shall be removed prior to occupancy.
- 1.3 TELEPHONE
- A. Provide and pay for telephone service to the temporary field office at time of project mobilization.
 - B. Provide and pay for telephone service for use by construction personnel.
- 1.4 WATER
- A. Owner Supplied Utilities: The Owner will provide the Contractor with existing source(s) of water for construction use. The Contractor is responsible for coordinating Work related temporary water requirements without compromising the Owner's need for water and protecting the building water supply. The Contractor shall conserve water to the extent practicable and shall use a reasonable amount of water for construction. The Contractor shall pay for water usage and related sewer costs above the reasonable amount if the Owner determines an unreasonable or excessive amount of water has been used by the Contractor. Should the Contractor's use of water required for Work exceed the limits of available water to the building the Contractor shall reduce water consumed and/or pay for such modifications as required to eliminate compromising the Owner system's ability to meet water requirements for existing services.
 - B. Contractor shall furnish and install connection to the system and service point designated by the Owner Facilities Operations Department.
 - C. Contractor shall provide extended branch piping with outlets so located such that water may be made available by hoses with threaded connections and provide temporary pipe insulation to prevent freezing.
 - D. Contractor shall remove all temporary service and piping, including protection of potable water systems, before completion of the project.

1.5 UTILITY OUTAGES

A. The following restrictions apply to utility outages.

1. Authority to schedule power outages must be obtained from the Owner. The Owner will coordinate the interruption of service with the Contractor and all Owner parties affected.
2. In all cases the Contractor shall keep utility and service outages to a minimum and proceed only after written approval of the Owner is received.
3. Contractor requests for outages shall include an identification of areas that will be affected by the proposed outage.
4. Contractor requests for outages shall be submitted a minimum of five (5) working days [preferred ten (10) days for extensive outages] in advance of the proposed outage.

END OF SECTION

SECTION 01-5200
CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 FIELD OFFICES

A. Use of existing facilities for this Project.

1. Use of existing facilities for temporary field offices (and for storage) is allowed. Coordinate space use with Owner.

1.2 SANITARY FACILITIES

A. Provide and maintain temporary sanitary facilities and enclosures. Existing and new permanent facilities are not available for use.

END OF SECTION

SECTION 01-5500
VEHICULAR ACCESS AND PARKING

PART 1 GENERAL

1.1 TEMPORARY PARKING

- A. The Owner will designate a limited number of on-site parking spaces for the Contractor.
- B. Other existing on-site streets and parking facilities may not be used by construction personnel.
- C. Parking violators will be subject to towing and fines.

END OF SECTION

SECTION 01-5600
TEMPORARY BARRIERS AND ENCLOSURES

PART 1 GENERAL

1.1 TEMPORARY BARRIERS AND ENCLOSURES

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Exterior Closures:
 - 1. Provide temporary weather-tight closure at exterior openings to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures, and to prevent entry of unauthorized persons.
 - 2. Provide access doors with appropriate hardware and locks.
- D. Interior Closures:
 - 1. Provide temporary barriers to separate construction areas from Owner occupied areas, to prevent penetration of dust into occupied areas, to prevent entry of unauthorized persons in construction areas, and to prevent damage to existing materials and equipment.
 - 2. Construct of adequate framing and surface with non-combustible materials having closed joints and sealed edges at intersections with existing surfaces.
 - 3. Closures with fire rated corridors shall meet fire-rating equivalents.
 - 4. Paint surfaces exposed to view in occupied areas in colors directed by the Architect.
- E. Tree and Plant Protection:
 - 1. Preserve and protect existing trees and plants designated to remain post-construction.
 - 2. Provide 4 foot high barriers around drip line or beyond as approved by the Owner, with access for maintenance.
 - 3. Consult with Owner Architect/Arborist; remove agreed-on roots and branches which interfere with construction; employ Owner approved arborist to remove and to treat cuts.
 - 4. Protect areas within barriers from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuously running water.
 - 5. Replace trees and plants damaged by construction operation with ones of similar size approved by the Owner.
- F. Security
 - 1. Provide security and facilities to protect the worksite and existing premises from unauthorized entry, vandalism, and theft.
 - 2. Conduct all operations in a manner to avoid risk of loss, theft, or damage by vandalism.
- G. Noise Control
 - 1. Execute Work as quietly as practicable to avoid unnecessary disturbances to occupants within and around the premises.
 - 2. High-level noise operations must be performed in accordance with local regulations and must be approved by Owner prior to proceeding.
 - 3. Loud noise and vibrations, which cause disturbance in adjacent residential areas, must be controlled and coordinated in advance with the Owner.

END OF SECTION

SECTION 01-5620
DUST CONTROL

PART 1 GENERAL

1.1 GENERAL

- A. Execute Work by methods to minimize dust rising from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into the atmosphere.
- C. Construction activities causing disturbance of existing dust, or creating new dust, must be conducted in tight enclosures cutting off any flow of dust particles into adjacent occupied areas.
- D. Before any construction on site begins, Contractor must properly brief all workers on site to ensure full compliance with the dust control measures in the Construction Documents. Conduct a field review of all dust control policies. Fill out and sign a checklist approved by the Owner.
- E. Contractor installs temporary construction dust control barriers and closures above ceilings to prevent the transmission of dust into adjacent occupied areas.
- F. Do not allow dust and debris to accumulate; remove dust daily; transport all demolished or removed material in tightly sealed, covered, rubber tired containers; fit out containers with clean polyethylene covers; seal containers completely at perimeters; before leaving construction areas wipe clean all containers with a damp sponge to prevent tracking of dust; and place the sponge and pail inside the dust control barrier entrance and keep them clean and changed daily.
- G. Provide temporary fans, associated ductwork, and dust control barriers required to maintain a negative pressure in the Work area relative to the surrounding occupied areas. Provide HEPA filtered exhaust fans when utilizing existing exhaust duct system. Submit plan for achieving negative pressure to the Owner for review. Install a visual monitoring system to demonstrate that the area is under negative pressure at all times until construction barriers are removed.
- H. Provide walk off mats at inside dust control barrier entrances and vacuum or change walk-off mats daily or more often if necessary, to prevent accumulation of dust; provide (sticky) walk-off mats immediately outside dust control barrier entrances.
- I. Immediately remove any dust tracked outside a dust control barrier.
- J. Immediately replace any ceiling access panels opened for investigation beyond the sealed areas when unattended. If a ceiling tile is removed in any inpatient area, outpatient transplant clinic, or outpatient cancer clinic the patients must be removed from the space until at least one hour after the ceiling tile was replaced.
- K. Block off existing ventilation ducts within the construction area and cap ducts to be dust tight and to withstand airflow and pressure.
- L. Clean renovated areas before removal of dust control barriers by: a) wet mopping all vinyl or sheet flooring; b) vacuuming all carpet or soft surfaces with a HEPA filtered vacuum; and/or c) wiping all surfaces with disinfectant. Obtain approval of Owner before proceeding with removal of barriers and ceiling protection. Carefully remove barriers and ceiling protection to minimize the spread of dirt and debris.
- M. Clean renovated areas before removal of dust control barriers by: a) wet mopping all vinyl or sheet flooring; b) vacuuming all carpet or soft surfaces with a HEPA filtered vacuum; and/or c) wiping all surfaces with disinfectant. Obtain approval of Owner before proceeding with removal of barriers and ceiling protection. Carefully remove barriers and ceiling protection to minimize the spread of dirt and debris.

- N. Take immediate action to clean deficient areas and cease other construction Work until deficiencies are corrected.

1.2 TEMPORARY DUST CONTROL BARRIERS

A. The Contractor shall:

1. Provide temporary dust control barriers where indicated and where reasonably required to ensure protection from dust.
 - a. Use 3-inch wide duct tape to tightly seal the perimeter of both sides of the barriers and install tape in a neat and continuous manner.
 - b. Finish paint outer surface of each barrier and match door and frame finish to existing adjacent areas.
 - c. Dust control barrier doors: 3'-0" minimum width, with frame, hardware, lock set keyed to Owner system, and heavy duty closer. Tightly weather-strip door to prevent flow of dust into patient areas. Locate doors as directed and swing into construction areas. Keep barrier doors locked outside of working hours. Precut all material for barriers in unoccupied areas.
 - d. Dust control barriers may not reduce exit access corridors below the required width of 44 inches.
2. Use Certainteed WP225 by Owens Corning, or equivalent rigid non-combustible foil faced insulation board barriers, to seal patient areas from Work areas, at the perimeter of Work areas, and between finish ceiling and upper concrete slab. The barrier shall be cut to fit around all existing utilities and shall be sealed with tape or foam around all penetrations. (Note - dust barriers may also be constructed as temporary fire/ smoke barriers. As such the gypsum board should continue to the floor slab above. See Drawings for appropriate wall type.)
3. Schedule with the Owner the Work described in the Construction Documents outside the construction dust control barriers, including Work in corridors and lobbies.
4. Not store any construction equipment or material outside the construction dust control barrier without the Owner's written permission.
5. Keep dust control barriers in a neat, clean, and dust tight condition at all times; provide necessary manpower and equipment (e.g. dust and wet mops, brooms, buckets and clean wiping rags, HEPA vacuums) for cleaning fine dust from floors in occupied areas and to keep adjacent occupied areas clean at all times.
6. Provide dust tight polyethylene covering taped in place to completely seal opening until final patching is done whenever openings are made into walls or ceilings in patient occupied areas. This procedure may only be done if Work is completed in one shift.
7. Keep construction areas swept clean with sweeping compound and keep clear of debris daily throughout the course of construction.
8. Complete and place into operation all of the above described items of Work before beginning demolition.

1.3 EXECUTION

A. The Contractor shall:

1. Maintain and operate dust control systems to provide continuous protection to occupied areas of the facility.
2. Modify and extend dust control systems as required.

3. Remove all temporary services installed as a requirement of the Contract Documents and restore utilities to original condition at the completion of the Work.
4. Legally and properly dispose of all debris resulting from removal and reconditioning operations.

1.4 ENFORCEMENT

- A. The Owner has the right to halt all construction until deficiencies are corrected if violations and/or non-compliance with the provisions of this section occur. The Contractor will bear full responsibility for any delay of Work.
- B. A record of each dust control violation will be maintained by the Owner.
- C. Failure of the Contractor to immediately mitigate and promptly correct deficiencies is sufficient grounds for termination and will result in corrective action being taken by the Owner. All resulting costs will be the responsibility of the Contractor.
- D. Continued violations will be cause to find the Contractor in non-compliance with Contract Documents and shall be sufficient grounds for termination.

END OF SECTION

SECTION 01-7000
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout.
- B. Inspection procedures.
 - 1. Submittal of As-Built markup project documents to A/E.
 - 2. Submittal of Record revision by A/E to Owner's PM or CAM.

1.3 SUBMITTAL OF WARRANTIES TO OWNER'S PM OR CAM.

- A. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 02 through 28.
- B. Detailed requirements for Record and As-Built markup documents to be submitted as part of project closeout are to be found in Division 01 Section 01-7200 "Project Record Documents, As-Built Markup Drawings".

1.4 SUBSTANTIAL COMPLETION

- A. Procedures: Comply with procedures specified in the Albemarle County Public Schools General Conditions for the Contract for Construction. Before submitting the Certificate of Partial or Substantial Completion by the Contractor complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Obtain and submit all releases that the Owner requires in order to lawfully occupy the Work without restriction.
 - 3. Advise the Owner's PM or CAM of pending insurance changeover requirements.
 - 4. Submit Albemarle County Public Schools Affidavit of Payment of Claims (CO-13).
 - 5. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents. All warranties and guarantees shall be drawn in the name of the Albemarle County Public Schools.
 - 6. Submit marked-up project documents, maintenance manuals, and similar information to A/E of Record.
 - 7. Deliver extra stock, and similar items.
 - 8. Discontinue and remove temporary facilities from the site, along with construction tools and similar elements.
 - 9. Complete repair of all deficient work, including the touch up of all deficient finishes.
 - a. The Engineer will under no circumstances confirm the Work to be Substantially Complete unless all deficient finish work has been completely repaired and all deficient finishes touched up.

10. Complete Final Cleaning.
 11. The Engineer will under no circumstances confirm the Work to be Substantially Complete unless Final Cleaning has been completely performed.
 12. Remove temporary lock cylinders and cores.
 13. Complete all start-up testing of building systems, special testing, and commissioning; deliver reports to Owner's representative (PM or CM).
 14. Complete the exterior portions of the Work to the same degree as that of the interior.
 - a. Construction operations must not impede walkways or driveways.
- 1.5 FINAL ACCEPTANCE
- A. Procedures: Comply with procedures specified in the Albemarle County Public Schools General Conditions for the Contract for Construction. Before submitting the Certificate of Completion by the Contractor (AC-13.2), complete the following:
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required. List exceptions in the request.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the A/E's final inspection list of items to be completed or corrected, endorsed, and dated by the A/E. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 4. Submit consent of Surety to final payment.
 5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 FINAL CLEANING

- A. General: Regular construction cleaning is included in 01-5000 "Temporary Facilities and Controls."
- B. Cleaning: Employ a professional cleaning service for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - a. Remove all temporary labels. Do not remove labels describing the fire resistance of doors and frames.
 - b. Clean glass, plastic, and all reflective surfaces, including all glass in doors and windows. Remove glazing compound, and over-paint. Clean all transparent material on both surfaces.
 - c. Exterior hard surfaces must be free of stains, shavings, films, gum, and other foreign deposits.
 - d. Interior hard surfaces, including shelves within built-in casework, must be free of cobwebs, dust, stains, shavings, films, and gum.
 - e. Electrical and mechanical equipment must be free of dust, cobwebs, stains, shavings, films, gum, excess lubricant, and other substances.

- f. Interior and exterior lamp lenses, reflectors, and baffles must be free of cobwebs, dust, stains, films, gum, insect droppings and carcasses.
 - g. Removal of Protection and Facilities: Remove temporary protection and construction facilities installed for the Work, including Contractor's office and site fencing, as specified in Division 1 Section 01-5000 "Temporary Facilities and Controls." Demount, clean, repaint, and stack on site all wood fence materials removed as directed for the Owner to retrieve. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
- 1. Where extra materials of value remain after completion of associated Work, they become the Owner's property. Dispose of these materials as directed by the Owner's PM/CAM.

END OF SECTION

SECTION 01-7200
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplemental General Conditions and other Division 01 Specification sections, apply to this section.

1.2 SUMMARY

- A. This section includes administrative and procedural requirements for creation of the Contractor's As-Built set of Drawings and Specifications.
- B. The Contractor will provide the following Project "As-Built" documents to the Architect/Engineer for Record document preparation:
 - 1. Marked-up copies of Contract Drawings.
 - 2. Marked-up copies of Shop Drawings.
 - 3. Newly prepared drawings (as necessary.)
 - 4. Marked-up copies of Specifications, Addenda, and Change Orders.
 - 5. Marked-up product data Submittals.
 - 6. Field records for variable and concealed conditions.
 - 7. Draw or detail information on Work that is shown only schematically.
- C. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 01 Section 01-3300 "Submittal Procedures" specifies general requirements for preparing and submitting Project Record Submittals.
 - 2. Division 01 Section 01-7000 "Contract Closeout" specifies general closeout requirements.
 - 3. Divisions 02 through 28 sections for specifying Project Record Submittal requirements for specific pieces of equipment or building operating systems.
- D. Maintenance of Documents and Samples:
 - 1. Store As-Built markup documents and samples in the field office apart from the Contract Documents used for construction.
 - 2. Do not use As-Built markup documents for construction purposes.
 - 3. Maintain As-Built markup documents in good order and in a clean, dry, legible condition.
 - 4. Make documents available at all times for the Architect/Engineer's inspections.

1.3 AS-BUILT MARKUP DRAWINGS

- A. Markup procedure: During construction, maintain a plain bond copy of Contract Drawings and Shop Drawings for Project Record Document purposes.
 - 1. Mark these Drawings to show the actual installation where the installation varies from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Marked items include, but are not limited to, the following:
 - 2. Dimensional changes to the Drawings.
 - 3. Revisions to details shown on the Drawings.
 - 4. Revisions to routing of piping and conduits.
 - 5. Changes made by Contract Change Order.
 - 6. Details not on original Contract Drawings.
 - 7. Mark prints of Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked,

- show cross-reference on Contract Drawings location.
- a. Mark documents with red erasable colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
8. Mark important additional information that was either shown schematically or omitted from original Drawings.
 9. Note Construction Change Order numbers.
- B. Responsibility for Markup: The individual or entity that obtained record data, whether the individual or entity is the Subcontractor, or similar entity, shall markup the Contract Drawings.
1. Accurately record information in an understandable drawing technique.
 2. Record data as soon as possible after obtaining it.
 3. Record and check the markup prior to enclosing concealed installations.
- C. Review of Drawings: Immediately prior to Substantial Completion inspection, review completed marked-up drawings with the Architect/Engineer.
1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each drawing. Include the printed designation "AS-BUILT PROJECT DRAWINGS" in a prominent location on each drawing.
 2. Refer instances of uncertainty to the Architect/Engineer for resolution.
- D. Adding Drawings to the As-Built Markup Documents: Prepare new drawings when the Architect/Engineer determines that neither original Contract Drawings nor Shop Drawings are suitable to show the actual installation. New drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
1. Consult with the Architect/Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. When completed and accepted, integrate newly prepared Drawings with procedures specified for organizing, copying, binding, and submitting marked-up drawings.
 2. Each prime contractor has the same responsibility for newly prepared drawings as specified for mark up of prints.
- E. Submission of As-Built documents:
1. At time of Substantial Completion, submit As-Built documents to the Architect/Engineer for the creation of Record Documents for Owner's records.
 2. Organize marked-up drawings into manageable sets. Bind sets with bond or Kraft-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- 1.4 AS-BUILT MARKUP PROJECT MANUAL
- A. During the construction period, maintain a copy of the Project Manual, including Addenda and modifications issued, for As-Built Project Document purposes.
1. Mark the Specifications to indicate the actual installation where the installation varies from that indicated in Specifications and modifications issued. Note related As-Built Project Drawing information, where applicable. Give particular attention to substitutions, selection of product options, and information on concealed installations that would be difficult to identify or measure and record later.
 - a. In each Specification section where products, materials, or equipment units are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.

- b. Record the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made and to document coordination with record product data Submittals and maintenance manuals.
 - c. Note related record product data, where applicable. For each principal product specified, indicate whether record product data has been submitted in a maintenance manual instead of as a product data Submittal.
 - B. Submission of As-Built Markup Project Manual:
 - 1. At time of Substantial Completion, submit As-Built Markup Project Manual to the Architect/Engineer for preparation of the Record Project Manual for the Owner's records.
 - 2. Bind Project Manual into heavy-duty, 3-ring, black, vinyl-covered binders, with non-stick transparent cover and spine pockets, 1 to 3 inches thick as required to contain information.
- 1.5 PRODUCT DATA SUBMITTALS
 - A. During the construction period, maintain one copy of each Product Data Submittal for final Project Submittal purposes.
 - 1. Mark product data to indicate the actual product installation where the installation varies substantially from that indicated in product data submitted. Include significant changes in the product delivered to the site and changes in manufacturer's instructions and recommendations for installation.
 - 2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 3. Note related Change Orders and As-Built Markup Drawings, where applicable.
 - 4. Upon completion of markup, submit a complete set of Product Data Submittals to the Architect/Engineer for the Owner's records.
 - 5. Where approved Product Data Submittals are required as part of maintenance manuals, submit approved Product Data Submittals as an insert in the manual instead of inclusion in separate Product Data Submittals.
 - B. Submission of approved Project Data Submittals:
 - 1. At time of Substantial Completion, submit digital files of approved Product Data Submittals to the Architect/Engineer to verify accuracy and completeness and then deliver to the Owner for the Owner's records.
 - 2. Bind Project Data Submittals into heavy-duty, 3-ring, black, vinyl-covered binders, with non-stick transparent cover and spine pockets, 1 to 3 inches thick as required to contain information or submit as files in folders.
- 1.6 MAINTENANCE AND OPERATIONS MANUAL SUBMITTAL
 - A. When each construction activity that requires submittal of maintenance manuals is nominally complete, but before Substantial Completion, submit maintenance manuals specified.
 - 1. Organize operation and maintenance manuals into suitable sets of manageable size.
 - 2. Provide heavy-duty, 3-ring, vinyl-covered binders, with non-stick transparent cover and spine pockets, 1 to 3 inches thick as required to contain information, sized for 8½" x 11" paper with inside pockets or pocket folders for folded sheets.
 - 3. Bind data into individual binders for each manual, properly identified on front and spine. For large manuals, provide an index sheet and thumb tabs for separate information categories. Standard specification headings apply:

4. In each maintenance manual, include information specified in individual Specification sections and the following:
 - a. Copies of applicable Shop Drawings and Product Data Submittals.
 - b. Names, addresses and trades of all applicable Subcontractors, manufacturers, and equipment.
 - c. Complete maintenance instructions from the manufacturer's local representative for each item of operable equipment, as well as the name, address and telephone number of the installing Subcontractor.
 - d. Catalog data on all items submitted and other pertinent data such as mortar colors, brick selected, and colors selected for all finished materials and fabrics.
 - e. Catalog data on all furnished plumbing fixtures, valves, water heaters, heating equipment, light fixtures and similar equipment and systems. Manufacturer's promotional literature is not acceptable.
 - f. Manufacturer's name, model number, service manual, spare parts list, and descriptive literature for all components used.
 - g. Preventive maintenance instructions and schedules for all major equipment.
 - h. Lit of most frequently encountered breakdowns and repairs/trouble shooting manual(s).
 - i. Instructions for starting and operating the actual system as installed.
 - j. Detailed one-line, color-coded wiring diagrams.
 - k. Copies of warranties.
 - l. Inspection procedures.
 - B. Submission of Operations and Maintenance (O&M) Manual: At time of Substantial Completion, submit O&M Manual to the Architect/Engineer for the Owner's use.
 1. Submit a single draft copy (digital file) to the Architect/Engineer for review and comment.
 2. Submit digital files of approved O&M Manual binder contents to Owner.
 3. Submit spare parts to the Owner.
- 1.7 MISCELLANEOUS PROJECT DOCUMENT SUBMITTALS
- A. Refer to other Specification sections for miscellaneous record-keeping requirements and Submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. At time of Substantial Completion, submit digital (PDF) files and one (1) print copy for Owner to the Architect/Engineer for the Owner's records.
 1. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:
 - a. Testing and qualification of tradesmen.
 - b. Documented qualification of installation firms.
 - c. Inspections and certifications by governing authorities.
 - d. Leakage tests.
 - e. Final inspection and correction procedures.
- 1.8 RECORDING
- A. Post changes and modifications to the Documents as they occur. Do not wait until the end of the Project.

PART 2 PRODUCTS - NOT USED
PART 3 EXECUTION - NOT USED
END OF SECTION

SECTION 01-7419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 WASTE MANAGEMENT REQUIREMENTS

- A. Owner requires that this project generate the least amount of trash and waste possible.
- B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.
- C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
- D. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.
- E. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.
- F. Methods of trash/waste disposal that are not acceptable are:
 - 1. Burning on the project site.
 - 2. Burying on the project site.
 - 3. Dumping or burying on other property, public or private.
 - 4. Other illegal dumping or burying.
- G. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.2 DEFINITIONS

- A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
- B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
- C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
- D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
- E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
- F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- I. Return: To give back reusable items or unused products to vendors for credit.
- J. Reuse: To reuse a construction waste material in some manner on the project site.
- K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

- L. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
 - M. Toxic: Poisonous to humans either immediately or after a long period of exposure.
 - N. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
 - O. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.
- 1.3 SUBMITTALS
- A. Refer to Division 01 requirements.
 - B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.
 - C. Waste Management Plan: Include the following information:
 - 1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
 - 2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
 - 3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
 - a. List each material proposed to be salvaged, reused, or recycled.
 - b. List the local market for each material.
 - 4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
 - 5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
 - 6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.
 - D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
 - 1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
 - 2. Submit Report on a form acceptable to Owner.
 - 3. Landfill Disposal: Include the following information:
 - a. Identification of material.
 - b. Amount, in tons or cubic yards (cubic meters), of trash/waste material from the project disposed of in landfills.
 - c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - 4. Recycled and Salvaged Materials: Include the following information for each:
 - a. Identification of material, including those retrieved by installer for use on other projects.

- b. Amount, in tons or cubic yards (cubic meters), date removed from the project site, and receiving party.
 - c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
 - d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
 - e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
5. Material Reused on Project: Include the following information for each:
- a. Identification of material and how it was used in the project.
 - b. Amount, in tons or cubic yards (cubic meters).
 - c. Include weight tickets as evidence of quantity.
6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.
- E. Recycling Incentive Programs:
1. Where revenue accrues to Contractor, submit copies of documentation required to qualify for incentive.
 2. Where revenue accrues to Owner, submit any additional documentation required by Owner in addition to information provided in periodic Waste Disposal Report.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 WASTE MANAGEMENT PROCEDURES

- A. See Division 01 for additional requirements for project meetings, reports, submittal procedures, and project documentation.
- B. See Section 01-5000 "Temporary Facilities and Controls" for additional requirements related to trash/waste collection and removal facilities and services.
- C. See Section 01-7000 "Contract Closeout" for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.2 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.
- B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect/Engineer.
- C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.
- D. Meetings: Discuss trash/waste management goals and issues at project meetings.
 1. Prebid meeting.
 2. Preconstruction meeting.
 3. Regular job-site meetings.
- E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
 1. Provide containers as required.
 2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
 3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

- F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.
 - G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.
 - H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.
 - I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.
- END OF SECTION

SECTION 01-7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Operation and Maintenance Data.
- B. Warranties and bonds.

1.2 RELATED REQUIREMENTS

- A. Section 01-3100 "Project Management and Coordination."
- B. Section 01-7000 "Contract Closeout."
- C. Individual Product Sections: Specific requirements for operation and maintenance data.
- D. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

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

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 OPERATION AND MAINTENANCE DATA

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

3.2 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
 - 1. Product data, with catalog number, size, composition, and color and texture designations.

2. Information for re-ordering custom manufactured products.
 - B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
 - C. Additional information as specified in individual product specification sections.
 - D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- 3.3 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS
- A. For Each Item of Equipment and Each System:
 1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
 - B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
 - C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 - D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - E. Provide servicing and lubrication schedule, and list of lubricants required.
 - F. Include manufacturer's printed operation and maintenance instructions.
 - G. Include sequence of operation by controls manufacturer.
 - H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - I. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
 - J. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - K. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - L. Include test and balancing reports.
 - M. Additional Requirements: As specified in individual product specification sections.
- 3.4 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS
- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
 - B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
 - C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
 - E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect/Engineer, Consultants, Contractor and subcontractors, with names of responsible parties.
 - F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
 - G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
 - H. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
 - I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
 - J. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
 - K. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
 - 1. Air and water balance reports.
 - 2. Certificates.
 - 3. Photocopies of warranties and bonds.
 - L. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- 3.5 WARRANTIES AND BONDS
- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
 - B. Verify that documents are in proper form, contain full information, and are notarized.
 - C. Co-execute submittals when required.
 - D. Retain warranties and bonds until time specified for submittal.
 - E. Manual: Bind in commercial quality 8-1/2 by 11 inch (216 by 279 mm) three D side ring binders with durable plastic covers.
 - F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
 - G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
 - H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 01-7900
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1 SUMMARY

- A. Demonstration of products and systems where indicated in specific specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
 - 1. All software-operated systems.
 - 2. HVAC systems and equipment.
 - 3. Electrical systems and equipment.

1.2 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Training Plan: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
 - 1. Submit to Architect/Engineer for transmittal to Owner.
 - 2. Submit for review and inclusion in overall training plan.
 - 3. Submit not less than four weeks prior to start of training.
 - 4. Revise and resubmit until acceptable.
 - 5. Provide an overall schedule showing all training sessions.
 - 6. Include at least the following for each training session:
 - a. Identification, date, time, and duration.
 - b. Description of products and/or systems to be covered.
 - c. Name of firm and person conducting training; include qualifications.
 - d. Intended audience, such as job description.
 - e. Objectives of training and suggested methods of ensuring adequate training.
 - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
 - g. Media to be used, such as slides, hand-outs, etc.
 - h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.
- C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
 - 1. Include applicable portion of O&M manuals.
 - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
 - 3. Provide one extra copy of each training manual to be included with operation and maintenance data.
- D. Training Reports:
 - 1. Identification of each training session, date, time, and duration.
 - 2. Sign-in sheet showing names and job titles of attendees.
 - 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

1.3 QUALITY ASSURANCE

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.

1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 DEMONSTRATION - GENERAL

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstration may be combined with Owner personnel training if applicable.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
 1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.2 TRAINING - GENERAL

- A. Conduct training on-site unless otherwise indicated.
- B. Owner will provide classroom and seating at no cost to Contractor.
- C. Provide training in minimum two hour segments.
- D. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.
- E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
 1. The location of the O&M manuals and procedures for use and preservation; backup copies.
 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
 3. Typical uses of the O&M manuals.
- F. Product- and System-Specific Training:
 1. Review the applicable O&M manuals.
 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
 3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
 4. Provide hands-on training on all operational modes possible and preventive maintenance.
 5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
 6. Discuss common troubleshooting problems and solutions.
 7. Discuss any peculiarities of equipment installation or operation.

8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
 9. Review recommended tools and spare parts inventory suggestions of manufacturers.
 10. Review spare parts and tools required to be furnished by Contractor.
 11. Review spare parts suppliers and sources and procurement procedures.
- G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.
- END OF SECTION

SECTION 26-0500
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of Division 01, the General Conditions, Supplemental General Conditions, and Special Conditions apply to this and all Electrical Specification Sections.
- B. This Section applies to all Electrical sections.

1.2 JOB CONDITIONS

- A. The Contract Documents specify the scope and arrangement of the Work and shall be followed as closely as actual conditions allow.
- B. The Contractor shall give consideration to all other trades, and make arrangements to avoid conflicts and interference with other Work, new or existing. Contractor shall coordinate all components of the Work, and provide minor adjustments as required, including offsets, transitions, fittings, and accessories to meet actual conditions.
- C. The Contractor shall visit the job site prior to bid date to examine the conditions under which the Work is to be performed. No extra charges shall be paid for providing of Products or furnishing of Work resulting from failure to comply with this requirement.

1.3 CONFORMANCE TO REGULATIONS

- A. All Work shall conform to the regulations of the applicable federal, state, and local laws, ordinances and codes.

1.4 REGULATORY REQUIREMENTS

- A. All applicable Work shall conform to the requirements of NFPA 70.
- B. All Products shall be listed by the Underwriters Laboratories, Inc. (UL), and shall bear the UL label. Where UL labels are not provided from the factory, the Contractor shall be responsible for having the equipment or materials tested by a UL testing firm, acceptable to authority having jurisdiction, to determine suitability of the Product for purpose specified.

1.5 QUALITY ASSURANCE

- A. Work shall meet or exceed minimum recommendations of:
 - 1. ANSI - American National Standards Institute
 - 2. ASTM - American Society for Testing Materials
 - 3. AWG - American Wire Gauge
 - 4. ETL - Electrical Testing Lab
 - 5. EIA - Electronic Industries Association
 - 6. IEEE - Institute of Electrical and Electronic Engineers
 - 7. ISA - Instrument Society of America
 - 8. NEC - National Electrical Code, NFPA 70
 - 9. NECA - National Electrical Contractors Association
 - 10. NEMA - National Electrical Manufacturer's Association
 - 11. NFPA - National Fire Protection Association
 - 12. OSHA - Occupational Safety and Health Act
 - 13. UL - Underwriters' Laboratories, Inc.
 - 14. VUSBC - Virginia Uniform Statewide Building Code 2015
- B. Reference to the standards of any technical society, organization, or association, or to the laws, ordinances, or codes of governmental authorities shall mean the latest standard, code, or

specification adopted, published, and effective on the date of Bid Opening.

- C. The specifications, codes, and standards referenced in these specifications (including addenda, amendments, and errata) shall govern in all cases where references thereto are made. In case of conflict between the referenced specifications, the more stringent requirement shall govern unless otherwise permitted by the Architect/Engineer. Major conflicts shall be referred to the Architect/Engineer for resolution.

1.6 MATERIALS AND EQUIPMENT

- A. Unless specifically noted otherwise, all materials and equipment furnished for permanent installation in the Work shall conform to applicable standards, be of a current design, new, unused, and undamaged.
- B. Individual parts shall be manufactured to standard sizes and gauges so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate equipment shall be interchangeable.

1.7 UTILITIES AND CONNECTIONS

- A. Verify location of all existing utilities before laying out and making connections. Report any inconsistencies to Architect/Engineer before commencing Work. Contractor shall be responsible for correcting any errors, and repairing or replacing all materials and equipment damaged as a result of failure to comply with this requirement.

1.8 WIRING DIAGRAMS

- A. All electrical equipment shall be provided with complete wiring diagrams showing all power and control connections. The diagrams shall be legible and placed in a clear plastic pouch that is permanently affixed to the equipment.

1.9 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Protect Products from damage, marring, and soiling.
- B. Any marring of factory finishes shall be repaired or replaced as necessary to match the original factory finish.

1.10 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Submittal Schedule: The Contractor shall submit a Submittal Schedule to the Architect/Engineer for review within 30 days of the Award of Contract. The Architect/Engineer shall review the schedule for content and return with comments or approval. Revise and resubmit as required.
- C. General: The Contractor shall submit information, for Architect/Engineer's review, to demonstrate compliance of proposed Products and/or installations with the Contract Documents. This information shall include, but not be limited to catalog data; performance data; noise levels; etc. Proposed Products that are not in compliance with the Contract Documents may be rejected. Information must be submitted on all required Products, including proposed Products that appear to be in compliance with the Contract Documents.
- D. Contractor preparation:
 - 1. The Contractor shall review and approve each submittal and coordinated all other related or affected Work before submitting for review. All copies of each submittal shall bear the Contractor's stamp, with signature or initials, certifying review and approval; verification of field dimensions; and coordination with adjacent Work are in compliance with the requirements of the Contract Documents.

2. The Contractor shall identify variations from the requirements of the Contract Documents on all copies of applicable submittals. No extra charges shall be paid for the providing of Products or furnishing of Work required as a result of failure to comply with this requirement.
- E. Submittal Format:
1. Each submittal shall be accompanied by a letter of transmittal listing Project Title, Contractor, Subcontractor or supplier, submitted Products, pertinent drawing and detail number, and specification section number, as appropriate.
 2. Provide submittals electronically in PDF format.
 3. Product data shall be clearly marked to identify the applicable Products or models. Options or modifications required by the Contract Documents shall be clearly identified.
 4. Submittals shall be complete with all associated Products. Submittals on portions of a Product or system shall not be reviewed.
- F. Architect/Engineer Procedures: Submittals will be reviewed with reasonable promptness. The Contractor shall allow 15 days for review of each submittal. The Architect/Engineer's comments will be indicated on a Submittal Review Comments form, which will be attached to each copy of the submittal. Contractor shall be responsible for distributing copies of reviewed submittals as appropriate.
- G. Resubmission: Contractor shall change or correct submittals as required by the Architect/Engineer and resubmit until approved. The Contractor shall identify any changes other than those required by the Architect/Engineer on all copies of the resubmittal.
- H. Approval required: The ordering, fabrication and/or installation of Products before approval of all relevant submittals shall be at the Contractor's risk. Any damage to new or existing Work resulting from the installation of unapproved Products shall be repaired or replaced by the Contractor at no additional cost. Payment will not be recommended for any Work that does not have an approved submittal.
- 1.11 SUBSTITUTIONS
- A. Refer to Division 01 requirements.
 - B. For a Product specified by naming one or more manufacturer and model, and followed with the statement "or approved equal," the Contractor may submit a Product other than the Product specified by manufacturer and model, that Product shall be considered a Substitute Product and shall comply with the following conditions:
 1. The Contractor shall verify the Substitute Product is equal or superior in all respects to the Specified Product.
 2. The Contractor shall submit data on the Substitute Product in compliance with the "Submittals" paragraph herein.
 3. The Contractor shall be responsible for coordinating the installation of the Substitute Product with all trades. The Contractor shall be responsible for any changes required incorporating the Substitute Product into the Work.
 4. The Contractor waives all claims for additional costs related to the Substitute Product that become apparent before, during or after installation.
- 1.12 OPERATING AND MAINTENANCE MANUAL
- A. Refer to Division 01 requirements.
 - B. General: The Contractor shall submit one copy of the Operation and Maintenance Manual to the Architect/Engineer for review a minimum of 60 days prior to Instruction and Training Sessions.

This copy will be returned to the Contractor with Architect/Engineer's comments or approval. The Contractor shall revise and resubmit one copy of the O&M Manual as required. The Contractor shall provide four copies of the approved O&M Manual. Instruction and Training Sessions shall begin 30 days after receipt of the approved O&M Manuals. Refer to "Instruction and Training Sessions" paragraph herein.

- C. Contents: The manual shall consist of three parts as follows:
1. Part 1: Directory listing names, addresses, and telephone numbers of Architect, Engineer, Contractor, Subcontractors, and major equipment suppliers.
 2. Part 2: Operation and maintenance instructions including, but not limited to, the following:
 - a. General description and specifications of each component and of each system as a whole.
 - b. Manufacturer's catalog description of each component supplemented by approved equipment submittals.
 - c. Installation and start-up instructions, including complete calibration procedures for each component and for system as a whole.
 - d. Operating instructions including:
 - 1) Sequence of operation.
 - 2) Shutdown procedure.
 - 3) Emergency operating procedures.
 - e. Trouble shooting guide with service instructions.
 - f. Preventive maintenance schedules.
 - g. Parts list with names, addresses, and telephone numbers of local parts suppliers.
 - h. Names, addresses, and phone numbers of nearest service organizations.
 - i. Interface requirements and capabilities.
 - j. Complete equipment schedules.
 3. Part 3: Project documents including, but not limited to, the following:
 - a. Testing report(s).
 - b. Certificates.
 - c. Copies of warranties.
- D. Quality: The quality of the manual will be checked by the Architect/Engineer for accuracy, completeness and quality of printing. Deficiencies will necessitate resubmittals by the Contractor. Refer to "Submittals" paragraph herein.

1.13 INSTRUCTION AND TRAINING SESSIONS

- A. Refer to Division 01 requirements.
- B. After all equipment and services are in operation and receipt of the approved Operation and Maintenance Manuals, Instruction and Training Sessions shall be conducted for representatives of the Owner.
- C. Instruction Session shall be conducted during the Owner's normal working periods and at times satisfactory to the Owner. Session shall last not less than one 8-hour working day.
- D. The Training Session shall address the operation and maintenance of each piece of equipment and of the system as a whole. Preventative maintenance techniques shall be included.
- E. Competent, factory-trained service and operating personnel from the appropriate manufacturer(s) shall give instructions and training. The Contractor shall record the names of all personnel present at each Instruction and Training Session and shall forward a copy of the attendance log to the Architect/Engineer within seven days after each session.

1.14 RECORD DRAWINGS

- A. Refer to Division 01 requirements.

1.15 WORK SEQUENCE

- A. Refer to Division 01 requirements.

1.16 PROJECT/SITE CONDITIONS

- A. Install Work in accordance with the Contract Documents unless prevented by Project conditions.
- B. When Project/Site conditions require a revision to the Work the Contractor shall prepare drawings to show proposed revision. The drawings shall include revisions to Work specified in other Sections when applicable. Submit drawings to Architect/Engineer for review. The Contractor shall allow a minimum of three business days for the Architect/Engineer to respond to proposed revision. The Contractor shall not proceed with that portion of the Work until a response has been returned.

1.17 WARRANTIES

- A. Refer to Division 01 requirements.
- B. Warranty periods shall begin from Date of Substantial Completion.

1.18 CONTRACTOR COORDINATION

- A. Project scope is electrical work only in existing buildings. It is the responsibility of the Electrical Contractor to perform, or sub-contract as appropriate, all work needed to accomplish the electrical scope. The Electrical Contractor is responsible for replacing any existing items damaged during the construction process.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 GENERAL

- A. Unless otherwise noted, install equipment in accordance with manufacturer's printed instructions for application indicated. Maintain copies of manufacturer's printed instructions at the project site.
- B. Install, operate, and adjust systems in accordance with the Contract Documents.
- C. Wiring, conduit, and other items associated with the electrical system shall not obstruct access to any new or existing electrical equipment and/or mechanical equipment. All electrical equipment shall be installed where it is readily accessible for servicing.
- D. A Request For Information (RFI) shall be submitted to the Architect/Engineer for any portion of the Work that the Contractor determines a clarification is required. Prior to submitting a RFI the Contractor shall thoroughly research the Contract Documents to ensure information has not been overlooked. The RFI shall include references to the portion of the Contract Documents that requires a clarification. The Contractor shall allow a minimum of three business days for the Architect/Engineer to respond to the RFI. The Contractor shall not proceed with that portion of the Work until a response has been returned.
- E. All Products delivered to the site(s) shall be stored in accordance with the manufacturer's printed instructions. If a manufacturer does not have printed instructions then the Product shall be adequately housed and otherwise protected against damage or corrosion. If any Product stored at the site(s) is not protected as specified herein, the Contractor shall not receive payment for that Product. That Product shall be stored by the Owner at the expense of the Contractor. Any Product damaged as a result of failure to comply with this requirement shall be replaced by the Contractor at no additional cost to the Owner.

3.2 WORKMANSHIP

- A. Install Work using procedures defined in NECA Standard of Installation.

3.3 ACCESSIBILITY

- A. Wiring, conduit, and other Products associated with the electrical system shall not obstruct access to any other electrical equipment, mechanical equipment, access hatches, doorways, windows, or other portions of the building and its systems. All electrical equipment shall be installed where it is readily accessible for servicing.

3.4 INSPECTIONS AND TESTS

- A. Only persons trained and familiar with this work shall be used for testing and adjusting.
- B. All faulty wiring shall be corrected, retested, and found to operate properly.
- C. Tests shall include, but not be limited to, the following.
 - 1. Measure the load on each phase of the main service and each phase of every new feeder under full load conditions.
 - 2. Make insulation resistance tests on all new power and lighting circuitry.
 - 3. Test all wiring for continuity and grounds before connecting any equipment or devices. Concealed wiring shall be tested before being closed in.
 - 4. Contractor shall test the entire new work when the Work is completed to insure all portions are free from short circuits and grounds. Contractor shall make necessary corrections and adjustments then retest until performance requirements are met.
 - 5. See individual Division 26 sections for additional testing requirements.
- D. Documentation:
 - 1. All tests specified shall be completely documented indicating time of day, date, temperature and all pertinent test information.
 - 2. All required documentation of readings indicated above shall be submitted to the Architect/Engineer prior to, and as one of the prerequisites for, final acceptance of the project.
- E. All equipment to conduct the tests shall be furnished at the Contractor's expense.
- F. Make corrections and adjustments and repeat tests until performance requirements have been met. Submit written reports to Owner.
- G. Submit certificate of final inspection and approval from authority having jurisdiction to Architect/Engineer.
- H. Architect/Engineer's Right to Retesting:
 - 1. Should the Contractor refuse or neglect to make any tests necessary to demonstrate the integrity of the completed system, the Architect/Engineer may retain the services of an outside consultant to make such tests and perform necessary corrections and adjustments.
 - 2. The costs for such tests and adjustments shall be deducted from amounts owing to the Contractor and shall not be borne by the Owner or Architect/Engineer.

3.5 CLEANING THE INSTALLATION

- A. After the equipment, wiring, and conduit has been proven operational, carefully clean all interiors of cabinets and external parts of each piece of equipment, thoroughly removing all traces of dirt, oil, grease, and other foreign substances or objects.

END OF SECTION

SECTION 26-0505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical demolition.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as indicated.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition drawings are based on casual field observation.
- D. Report discrepancies to Architect/Engineer before disturbing existing installation.
- E. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

- A. Coordinate utility service outages with utility company.
- B. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- C. Existing Electrical Service: Maintain existing system in service. Disable system only to make switchovers and connections. Minimize outage duration.
 - 1. Obtain permission from Owner at least one week before partially or completely disabling system.
 - 2. Make temporary connections to maintain service in areas adjacent to work area.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Remove, relocate, and extend existing installations to accommodate new construction.
- B. Remove abandoned wiring to source of supply.
- C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- D. Disconnect and remove abandoned panelboards and distribution equipment.
- E. Repair adjacent construction and finishes damaged during demolition and extension work.
- F. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.
- G. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.4 CLEANING AND REPAIR

- A. See Section 01-7419 - Construction Waste Management and Disposal for additional requirements.
- B. Clean and repair existing materials and equipment that remain or that are to be reused.
- C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26-0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS & CABLES (600 V & LESS)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Single conductor building wire.
- B. Wiring connectors.
- C. Electrical tape.
- D. Heat shrink tubing.
- E. Oxide inhibiting compound.
- F. Wire pulling lubricant.

1.2 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2020).
- E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.
- F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes 2020.
- G. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2021.
- I. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.
- L. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.
- M. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.
- N. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.
- O. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.
- P. UL 1569 - Metal-Clad Cables Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.

3. Notify Architect/Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- 1.4 SUBMITTALS
 - A. Refer to Division 01 requirements.
 - B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.
 - C. Field Quality Control Test Reports.
 - D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
 - E. Project Record Documents: Record actual installed circuiting arrangements. Record actual feeder routing.
 - 1.5 QUALITY ASSURANCE
 - A. Conform to requirements of NFPA 70.
 - B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with documented experience.
 - 1.6 DELIVERY, STORAGE, AND HANDLING
 - A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.
 - 1.7 FIELD CONDITIONS
 - A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect/Engineer and obtain direction before proceeding with work.
 - B. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- PART 2 PRODUCTS
- 2.1 CONDUCTOR AND CABLE APPLICATIONS
 - A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
 - B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
 - 2.2 CONDUCTOR AND CABLE GENERAL REQUIREMENTS
 - A. Provide products that comply with requirements of NFPA 70.
 - B. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - C. Provide new conductors and cables manufactured not more than one year prior to installation.
 - D. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
 - E. Comply with NEMA WC 70.
 - F. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
 - G. Conductors for Grounding and Bonding: Also comply with Section 26-0526 "Grounding and Bonding for Electrical Systems."
 - H. Conductor Material:

1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 3. Tinned Copper Conductors: Comply with ASTM B33.
- I. Minimum Conductor Size:
1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 feet (23 m): 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 150 feet (46 m): 8 AWG, for voltage drop.
 - 3) 20 A, 277 V circuits longer than 150 feet (46 m): 10 AWG, for voltage drop.
 2. Feeder and Branch Circuits:
 - a. Where conductor sizes are increased for voltage drop or other reasons the equipment grounding conductor shall be increased in size proportionately.
 - b. Where conductor sizes are increased for voltage drop they may be reduced in size within 10-feet of termination in order to fit under the lugs available on the overcurrent protective device but not less than the ampacity of the frame size of the overcurrent protective device or equipment terminations/lugs.
- J. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- K. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 2. Color Coding Method: Integrally colored insulation.
 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - 4) Neutral/Grounded: Gray.
 - b. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - c. Equipment Ground, All Systems: Green.
 - d. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.
- 2.3 SINGLE CONDUCTOR BUILDING WIRE
- A. Description: Single conductor insulated wire.
 - B. Conductor Stranding:
 1. Feeders and Branch Circuits:

- a. Size 10 AWG and Smaller: Solid.
- b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
 - a. Size 4 AWG and Larger: Type XHHW-2.
 - b. Installed Underground: Type XHHW-2.

2.4 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A, 486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26-0526 "Grounding and Bonding for Electrical Systems."
- C. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 - 4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
 - 5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
- E. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- F. Mechanical Connectors: Provide bolted type or set-screw type.
- G. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.5 WIRING ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).

3. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil (0.76 mm); suitable for continuous temperature environment up to 194 degrees F (90 degrees C) and short-term 266 degrees F (130 degrees C) overload service.
4. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil (3.2 mm); suitable for continuous temperature environment up to 176 degrees F (80 degrees C).
5. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil (2.3 mm).
- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
- D. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.3 INSTALLATION

- A. Circuiting Requirements:
 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 2. When circuit destination is indicated without specific routing, determine exact routing required.
 3. Arrange circuiting to minimize splices.
 4. Include circuit lengths required to install connected devices within 10 ft (3.0 m) of location indicated.
 5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is not permitted.
 - a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
 - b. Increase size of conductors as required to account for ampacity derating.
 - c. Size raceways, boxes, etc. to accommodate conductors.
 7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- E. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- F. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 - 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
 - 2. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.
- G. Terminate cables using suitable fittings.
- H. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.
- I. Where conductors are installed in enclosures for future termination by others, provide a minimum of 5 feet (1.5 m) of slack.
- J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- L. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminants. Do not use wire brush on plated connector surfaces.
 - 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
 - 1. Dry Locations: Use insulating covers specifically designed for the connectors or electrical tape.
 - a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.

2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
 - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
 - b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
 3. Wet Locations: Use heat shrink tubing.
- N. Insulate ends of spare conductors using vinyl insulating electrical tape.
- O. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- P. Identify conductors and cables in accordance with Section 26-0553 "Identification for Electrical Systems."
- Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.
- 3.4 FIELD QUALITY CONTROL
- A. Perform inspection, testing, and adjusting in accordance with Division 01.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
 1. Disconnect surge protective devices (SPDs) prior to performing any high potential testing. Replace SPDs damaged by performing high potential testing with SPDs connected.
- C. Correct deficiencies and replace damaged or defective conductors and cables.
- END OF SECTION

SECTION 26-0526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.
- D. Ground rod electrodes.

1.2 REFERENCE STANDARDS

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NEMA GR 1 - Ground Rod Electrodes and Ground Rod Electrode Couplings 2017.
- D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- E. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; 2007.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. NFPA 780 - Standard for the Installation of Lightning Protection Systems 2020.
- H. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

1.3 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- D. Field quality control test reports.
- E. Project Record Documents: Record actual locations of grounding electrode system components and connections.

1.4 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING REQUIREMENTS

- A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.
- B. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

- D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- E. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Architect/Engineer. Precipitation within the previous 48 hours does not constitute normally dry conditions.
 - 2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
- F. Grounding Electrode System:
 - 1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.
 - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
 - 2. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
- G. Service-Supplied System Grounding:
 - 1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
 - 2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.
- H. Separately Derived System Grounding:
 - 1. Separately derived systems include, but are not limited to:
 - a. Transformers (except autotransformers such as buck-boost transformers).
 - 2. Provide grounding electrode conductor to connect derived system grounded conductor to nearest effectively grounded metal building frame. Unless otherwise indicated, make connection at neutral (grounded) bus in source enclosure.
 - 3. Provide bonding jumper to connect derived system grounded conductor to nearest metal building frame and nearest metal water piping in the area served by the derived system, where not already used as a grounding electrode for the derived system. Make connection at same location as grounding electrode conductor connection.
 - 4. Provide system bonding jumper to connect system grounded conductor to equipment ground bus. Make connection at same location as grounding electrode conductor connection. Do not make any other connections between neutral (grounded) conductors and ground on load side of separately derived system disconnect.
 - 5. Where the source and first disconnecting means are in separate enclosures, provide supply-side bonding jumper between source and first disconnecting means.
- I. Bonding and Equipment Grounding:
 - 1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment

- or likely to become energized as indicated and in accordance with NFPA 70.
- 2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
- 3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
- 4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- 5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
- 6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

2.2 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

- 1. Provide products listed, classified, and labeled as suitable for the purpose intended.
- 2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding:

- 1. Use insulated copper conductors unless otherwise indicated.

C. Connectors for Grounding and Bonding:

- 1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
- 2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
- 3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

D. Ground Rod Electrodes:

- 1. Comply with NEMA GR 1.
- 2. Material: Copper-bonded (copper-clad) steel.
- 3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify existing conditions prior to beginning work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70.
 - 1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches (150 mm) below finished grade.
- D. Make grounding and bonding connections using specified connectors.

1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- E. Identify grounding and bonding system components in accordance with Section 26-0553 "Identification for Electrical Systems."
- 3.3 FIELD QUALITY CONTROL
- A. Provide field inspection in accordance with Division 01 requirements.
 - B. Inspect and test in accordance with NETA ATS except Section 4.
 - C. Perform inspections and tests listed in NETA ATS, Section 7.13.
 - D. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
 - E. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.
 - F. Submit detailed reports indicating inspection and testing results and corrective actions taken.
- END OF SECTION

SECTION 26-0529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.2 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2019.
- D. MFMA-4 - Metal Framing Standards Publication 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 5. Notify Architect/Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.4 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for metal channel (strut) framing systems and post-installed concrete and masonry anchors.
- C. Shop Drawings: Include details for fabricated hangers and supports where materials or methods other than those indicated are proposed for substitution.
- D. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.5 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with applicable building code.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS**2.1 SUPPORT AND ATTACHMENT COMPONENTS****A. General Requirements:**

1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
5. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
6. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
 - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
 - c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.

1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.

1. Comply with MFMA-4.
2. Channel Material:
 - a. Indoor Dry Locations: Use painted steel, zinc-plated steel, or galvanized steel.
 - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel.

D. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.**E. Anchors and Fasteners:**

1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

PART 3 EXECUTION**3.1 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).

- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - D. Unless specifically indicated or approved by Architect/Engineer, do not provide support from suspended ceiling support system or ceiling grid.
 - E. Unless specifically indicated or approved by Architect/Engineer, do not provide support from roof deck.
 - F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
 - G. Equipment Support and Attachment:
 - 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 - 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 - 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 - 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
 - H. Conduit Support and Attachment: Also comply with Section 26-0533.13 "Conduit for Electrical Systems."
 - I. Secure fasteners according to manufacturer's recommended torque settings.
 - J. Remove temporary supports.
 - K. Identify independent electrical component support wires above accessible ceilings (only where specifically indicated or permitted) with color distinguishable from ceiling support wires in accordance with NFPA 70.
- 3.3 FIELD QUALITY CONTROL
- A. Inspect support and attachment components for damage and defects.
 - B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
 - C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 26-0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Intermediate metal conduit (IMC).
- C. Flexible metal conduit (FMC).
- D. Liquidtight flexible metal conduit (LFMC).
- E. Electrical metallic tubing (EMT).
- F. Rigid polyvinyl chloride (PVC) conduit.
- G. Reinforced thermosetting resin conduit (RTRC).
- H. Conduit fittings.
- I. Accessories.

1.2 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2020.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S) 2020.
- C. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit 2018.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2013.
- F. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) 2017.
- G. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- H. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit 2018.
- I. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit 2020.
- J. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing 2021.
- K. NEMA TC 14 (SERIES) - Reinforced Thermosetting Resin Conduit and Fittings Series 2015.
- L. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. UL 1 - Flexible Metal Conduit Current Edition, Including All Revisions.
- N. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.
- O. UL 360 - Liquid-Tight Flexible Metal Conduit Current Edition, Including All Revisions.
- P. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.
- Q. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Current Edition, Including All Revisions.
- R. UL 797 - Electrical Metallic Tubing-Steel Current Edition, Including All Revisions.
- S. UL 1242 - Electrical Intermediate Metal Conduit-Steel Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 - 2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.

3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
 4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
 5. Notify Architect/Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Sequencing:
1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.
- 1.4 SUBMITTALS
- A. Refer to Division 01 requirements.
 - B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.
 - C. Project Record Documents: Record actual routing for conduits installed underground and conduits 2 inch (53 mm) trade size and larger.
- 1.5 QUALITY ASSURANCE
- A. Conform to requirements of NFPA 70.
 - B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.
- PART 2 PRODUCTS
- 2.1 CONDUIT APPLICATIONS
- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
 - B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
 - C. Underground:
 1. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, intermediate metallic conduit (IMC), PVC-coated galvanized steel rigid metal conduit, rigid PVC conduit, or reinforced thermosetting resin conduit (RTRC).
 2. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.
 3. Where rigid polyvinyl (PVC) conduit larger than 2 inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit elbows for bends.
 - D. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
 - E. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or electrical metallic tubing (EMT).
 - F. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).

1. Locations subject to physical damage include, but are not limited to:
 - a. Where exposed below 8 feet (2.4 m), except within electrical and communication rooms or closets.
 - G. Exposed, Exterior: Use galvanized steel rigid metal conduit, intermediate metal conduit (IMC), or PVC-coated galvanized steel rigid metal conduit.
- 2.2 CONDUIT REQUIREMENTS
- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
 - B. Electrical Service Conduits: Also comply with Section 26-2100 "Low-Voltage Electrical Service Entrance."
 - C. Fittings for Grounding and Bonding: Also comply with Section 26-0526 "Grounding and Bonding for Electrical Systems."
 - D. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
 - E. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - F. Minimum Conduit Size, Unless Otherwise Indicated:
 1. Branch Circuits: 3/4 inch (21 mm) trade size.
 2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
 3. Control Circuits: 1/2 inch (16 mm) trade size.
 - G. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- 2.3 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
 - B. Fittings:
 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.
- 2.4 INTERMEDIATE METAL CONDUIT (IMC)
- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
 - B. Fittings:
 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.
- 2.5 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.
 - B. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil (1.02 mm).

- C. PVC-Coated Fittings:
 - 1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
 - 2. Non-Hazardous Locations: Use fittings listed and labeled as complying with UL 514B.
 - 3. Material: Use steel or malleable iron.
 - 4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil (1.02 mm).
 - D. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil (0.38 mm).
- 2.6 FLEXIBLE METAL CONDUIT (FMC)
- A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
 - B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - C. Description: Interlocked steel construction.
- 2.7 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)
- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
 - B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - C. Description: Interlocked steel construction with PVC jacket.
- 2.8 ELECTRICAL METALLIC TUBING (EMT)
- A. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
 - B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use compression (gland) type.
 - a. Do not use indenter type connectors and couplings.
- 2.9 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT
- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
 - B. Fittings:
 - 1. Manufacturer: Same as manufacturer of conduit to be connected.
 - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.
- 2.10 REINFORCED THERMOSETTING RESIN CONDUIT (RTRC)
- A. Description: NFPA 70, Type RTRC reinforced thermosetting resin conduit complying with NEMA TC 14 (SERIES).
 - B. Supports: Per manufacturer's recommendations.

- C. Fittings: Same type and manufacturer as conduit to be connected.

2.11 ACCESSORIES

- A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil (0.51 mm).
- B. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
- C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- D. Epoxy Adhesive for RTRC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- E. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force (890 N).
- F. Modular Seals for Conduit Penetrations: Rated for minimum of 40 psig; Suitable for the conduits to be installed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify routing and termination locations of conduit prior to rough-in.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- E. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.
- F. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- G. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal all conduits unless specifically indicated to be exposed.
 - 4. Conduits in the following areas may be exposed, unless otherwise indicated:
 - a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - c. Within joists in areas with no ceiling.
 - 5. Unless otherwise approved, do not route conduits exposed:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
 - 6. Arrange conduit to maintain adequate headroom, clearances, and access.
 - 7. Arrange conduit to provide no more than the equivalent of three 90 degree bends between pull points.

8. Route conduits above water and drain piping where possible.
 9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 10. Maintain minimum clearance of 6 inches (150 mm) between conduits and piping for other systems.
 11. Maintain minimum clearance of 12 inches (300 mm) between conduits and hot surfaces. This includes, but is not limited to:
 - a. Heaters.
 - b. Hot water piping.
 - c. Flues.
 12. Group parallel conduits in the same area together on a common rack.
- H. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 and Section 26-0529 "Hangers and Supports for Electrical Systems" using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
- I. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 3. Use suitable adapters where required to transition from one type of conduit to another.
 4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
 5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- J. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 4. Conceal bends for conduit risers emerging above ground.
 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
 6. Provide suitable modular seal where conduits penetrate exterior wall below grade.

7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 8. Provide metal escutcheon plates for conduit penetrations exposed to public view.
 - K. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
 3. Where calculated in accordance with NFPA 70 for reinforced thermosetting resin conduit (RTRC) conduit installed above ground to compensate for thermal expansion and contraction.
 4. Where conduits are subject to earth movement by settlement or frost.
 - L. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
 1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
 - M. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches (300 mm) at each end.
 - N. Provide grounding and bonding in accordance with Section 26-0526 "Grounding and Bonding for Electrical Systems."
 - O. Identify conduits in accordance with Section 26-0553 "Identification for Electrical Systems."
- 3.3 FIELD QUALITY CONTROL
- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
 - B. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.
 - C. Correct deficiencies and replace damaged or defective conduits.
- 3.4 CLEANING
- A. Clean interior of conduits to remove moisture and foreign matter.
- 3.5 PROTECTION
- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.
- END OF SECTION

SECTION 26-0553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Wire and cable markers.
- D. Voltage markers.
- E. Field-painted identification of conduit.

1.2 REFERENCE STANDARDS

- A. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- B. NFPA 70E - Standard for Electrical Safety in the Workplace 2021.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.
- B. Sequencing:
 - 1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
 - 2. Do not install identification products until final surface finishes and painting are complete.

1.4 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.
- C. Shop Drawings: Provide schedule of items to be identified indicating proposed designations, materials, legends, and formats.

1.5 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.6 FIELD CONDITIONS

- A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.1 IDENTIFICATION REQUIREMENTS

- A. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - a. Switchboards:
 - 1) Identify ampere rating.
 - 2) Identify voltage and phase.
 - 3) Identify power source and circuit number. Include location when not within sight of equipment.
 - 4) Use identification nameplate to identify main overcurrent protective device.
 - 5) Use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.

- b. Panelboards:
 - 1) Identify power source and circuit number. Include location when not within sight of equipment.
 - 2) Identify main overcurrent protective device. Use identification label for panelboards with a door. For power distribution panelboards without a door, use identification nameplate.
 - 3) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
 - 4) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
- c. Transformers:
 - 1) Identify power source and circuit number. Include location when not within sight of equipment.
 - 2) Identify load(s) served. Include location when not within sight of equipment.
- 2. Service Equipment:
 - a. Use identification nameplate to identify each service disconnecting means.
 - b. Use identification nameplate at each piece of service equipment to identify the available fault current and the date calculations were performed.
- 3. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
 - a. Service equipment.
- 4. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.
 - a. Minimum Size: 3.5 by 5 inches (89 mm by 127 mm).
 - b. Legend: Include orange header that reads "WARNING", followed by the word message "Arc Flash and Shock Hazard; Appropriate PPE Required; Do not operate controls or open covers without appropriate personal protection equipment; Failure to comply may result in injury or death; Refer to NFPA 70E for minimum PPE requirements" or approved equivalent.
 - c. Service Equipment: Include the following information in accordance with NFPA 70.
 - 1) Nominal system voltage.
 - 2) Available fault current.
 - 3) Clearing time of service overcurrent protective device(s).
 - 4) Date label applied.
- B. Identification for Conductors and Cables:
 - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26-0519 "Low-Voltage Electrical Power Conductors & Cables (600 V & Less)."
 - 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

3. Use wire and cable markers to identify circuit number or other designation indicated for power, control, and instrumentation conductors and cables at the following locations:
 - a. At each source and load connection.
 - b. Within boxes when more than one circuit is present.
 - c. Within equipment enclosures when conductors and cables enter or leave the enclosure.
 - C. Identification for Raceways:
 1. Use voltage markers to identify highest voltage present for accessible conduits at maximum intervals of 20 feet (6.1 m).
 2. Use voltage markers or color-coded bands to identify systems other than normal power system for accessible conduits at maximum intervals of 20 feet (6.1 m).
 3. Use identification labels, handwritten text using indelible marker, or plastic marker tags to identify spare conduits at each end. Identify purpose and termination location.
- ## 2.2 IDENTIFICATION NAMEPLATES AND LABELS
- A. Identification Nameplates:
 1. Materials:
 - a. Indoor Clean, Dry Locations: Use plastic nameplates.
 2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch (1.6 mm); engraved text.
 3. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch (25 mm) high; Four, located at corners for larger sizes.
 - B. Identification Labels:
 1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.
 - C. Format for Equipment Identification:
 1. Minimum Size: 1 inch (25 mm) by 2.5 inches (64 mm).
 2. Legend:
 - a. Equipment designation or other approved description.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height:
 - a. Equipment Designation: 1/2 inch (13 mm).
 5. Color:
 - a. Normal Power System: White text on black background.
- ## 2.3 WIRE AND CABLE MARKERS
- A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
 - B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
 - C. Legend: Power source and circuit number or other designation indicated.
 - D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
 - E. Minimum Text Height: 1/8 inch (3 mm).
 - F. Color: Black text on white background unless otherwise indicated.

2.4 VOLTAGE MARKERS

- A. Markers for Conduits: Use factory pre-printed self-adhesive vinyl, self-adhesive vinyl cloth, or vinyl snap-around type markers.
- B. Minimum Size:
 - 1. Markers for Conduits: As recommended by manufacturer for conduit size to be identified.
- C. Legend:
 - 1. Markers for Voltage Identification: Highest voltage present.
- D. Color: Black text on orange background unless otherwise indicated.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
 - B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
 - 1. Surface-Mounted Equipment: Enclosure front.
 - 2. Flush-Mounted Equipment: Inside of equipment door.
 - 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
 - 4. Branch Devices: Adjacent to device.
 - 5. Interior Components: Legible from the point of access.
 - 6. Conduits: Legible from the floor.
 - 7. Conductors and Cables: Legible from the point of access.
 - C. Install identification products centered, level, and parallel with lines of item being identified.
 - D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
 - E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
 - F. Mark all handwritten text, where permitted, to be neat and legible.
- 3.3 FIELD QUALITY CONTROL
- A. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

SECTION 26-0573
POWER SYSTEM STUDIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Short-circuit study.
- B. Criteria for the selection and adjustment of equipment and associated protective devices not specified in this section, as determined by studies to be performed.

1.2 REFERENCE STANDARDS

- A. IEEE 242 - IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems 2001, with Errata (2003).
- B. IEEE 399 - IEEE Recommended Practice for Industrial and Commercial Power Systems Analysis 1997.
- C. IEEE 551 - IEEE Recommended Practice for Calculating Short-Circuit Currents in Industrial and Commercial Power Systems 2006.
- D. NEMA MG 1 - Motors and Generators 2018.
- E. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. NFPA 70E - Standard for Electrical Safety in the Workplace 2021.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Existing Installations: Coordinate with equipment manufacturer(s) to obtain data necessary for completion of studies.
 - 2. Coordinate the work to provide equipment and associated protective devices complying with criteria for selection and adjustment, as determined by studies to be performed.
- B. Sequencing:
 - 1. Submit study reports prior to or concurrent with product submittals.
 - 2. Do not order equipment until matching study reports and product submittals have both been evaluated by Architect/Engineer.
 - 3. Verify naming convention for equipment identification prior to creation of final drawings, reports, and arc flash hazard warning labels (where applicable).
- C. Scheduling:
 - 1. Arrange access to existing facility for data collection with Owner.

1.4 SUBMITTALS

- A. Study reports, stamped or sealed and signed by study preparer.
- B. Field quality control reports.
- C. Project Record Documents: Revise studies as required to reflect as-built conditions.
 - 1. Include hard copies with operation and maintenance data submittals.
 - 2. Include computer software files used to prepare studies with file name(s) cross-referenced to specific pieces of equipment and systems.

1.5 POWER SYSTEM STUDIES

- A. Scope of Studies:

1. Perform analysis of new electrical distribution system to include only new equipment and existing equipment being modified in this project.
 2. Except where study descriptions below indicate exclusions, analyze system at each bus from primary protective devices of utility source down to each piece of equipment involved, including parts of system affecting calculations being performed (e.g. fault current contribution from motors).
 3. Include in analysis alternate sources and operating modes (including known future configurations) to determine worst case conditions.
 - a. Known Operating Modes:
 - 1) Utility as source.
 - 2) Generator as source.
- B. General Study Requirements:
1. Comply with NFPA 70.
 2. Perform studies utilizing computer software complying with specified requirements; manual calculations are not permitted.
- C. Data Collection:
1. Compile information on project-specific characteristics of actual installed equipment, protective devices, feeders, etc. as necessary to develop single-line diagram of electrical distribution system and associated input data for use in system modeling.
 - a. Utility Source Data: Include primary voltage, maximum and minimum three-phase and line-to-ground fault currents, impedance, X/R ratio, and primary protective device information.
 - 1) Obtain up-to-date information from Utility Company.
 - 2) Utility Company: Dominion Virginia Power.
 - b. Motors: Include manufacturer/model, type (e.g. induction, synchronous), horsepower rating, voltage rating, full load amps, and locked rotor current or NEMA MG 1 code letter designation.
 - c. Transformers: Include primary and secondary voltage ratings, kVA rating, winding configuration, percent impedance, and X/R ratio.
 - d. Protective Devices:
 - 1) Circuit Breakers: Include manufacturer/model, type (e.g. thermal magnetic, electronic trip), frame size, trip rating, voltage rating, interrupting rating, available field-adjustable trip response settings, and features (e.g. zone selective interlocking).
 - 2) Fuses: Include manufacturer/model, type/class (e.g. Class J), size/rating, and speed (e.g. time delay, fast acting).
 - e. Protective Relays: Include manufacturer/model, type, settings, current/potential transformer ratio, and associated protective device.
 - f. Conductors: Include feeder size, material (e.g. copper, aluminum), insulation type, voltage rating, number per phase, raceway type, and actual length.
 2. Existing Installations:
 - a. Collect data on existing electrical distribution system necessary for completion of studies, including field verification of available existing data (e.g. construction documents, previous studies). Include actual settings for field-adjustable devices.
- D. Short-Circuit Study:

1. Comply with IEEE 551 and applicable portions of IEEE 141, IEEE 242, and IEEE 399.
 2. For purposes of determining equipment short circuit current ratings, consider conditions that may result in maximum available fault current, including but not limited to:
 - a. Maximum utility fault currents.
 - b. Maximum motor contribution.
 - c. Known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).
 3. For each bus location, calculate the maximum available three-phase bolted symmetrical and asymmetrical fault currents. For grounded systems, also calculate the maximum available line-to-ground bolted fault currents.
- E. Study Reports:
1. General Requirements:
 - a. Identify date of study and study preparer.
 - b. Identify study methodology and software product(s) used.
 - c. Identify scope of studies, assumptions made, implications of possible alternate scenarios, and any exclusions from studies.
 - d. Identify base used for per unit values.
 - e. Include single-line diagram and associated input data used for studies; identify buses on single-line diagram as referenced in reports, and indicate bus voltage.
 - f. Include conclusions and recommendations.
 2. Short-Circuit Study:
 - a. For each scenario, identify at each bus location:
 - 1) Calculated maximum available symmetrical and asymmetrical fault currents (both three-phase and line-to-ground where applicable).
 - 2) Fault point X/R ratio.
 - 3) Associated equipment short circuit current ratings.
 - b. Identify locations where the available fault current exceeds the equipment short circuit current rating, along with recommendations.
- 1.6 QUALITY ASSURANCE
- A. Study Preparer Qualifications: Professional electrical engineer licensed in the State in which the Project is located and with minimum five years experience in the preparation of studies of similar type and complexity using specified computer software.
 1. Study preparer may be employed by the manufacturer of the electrical distribution equipment.
 - B. Computer Software for Study Preparation: Use the latest edition of commercially available software utilizing specified methodologies.
 - C. Contractor Responsibility: Provide all project-related data needed by study preparer, including equipment, wire sizes, insulation types, conduit types, and actual circuit lengths.
- PART 2 EXECUTION
- 2.1 FIELD QUALITY CONTROL
- A. Provide the services of field testing agency or equipment manufacturer's representative to perform inspection, testing, and adjusting.
 - B. Inspect and test in accordance with NETA ATS, except Section 4.
 - C. Adjust equipment and protective devices for compliance with studies and recommended settings.

- D. Notify Architect/Engineer of any conflicts with or deviations from studies. Obtain direction before proceeding.
 - E. Submit detailed reports indicating inspection and testing results, and final adjusted settings.
- END OF SECTION

SECTION 26-2200
LOW-VOLTAGE TRANSFORMERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General purpose transformers.

1.2 REFERENCE STANDARDS

- A. 10 CFR 431, Subpart K - Energy Efficiency Program for Certain Commercial and Industrial Equipment - Distribution Transformers Current Edition.
- B. IEEE C57.94 - IEEE Recommended Practice for Installation, Application, Operation, and Maintenance of Dry-Type Distribution and Power Transformers 2015.
- C. IEEE C57.96 - IEEE Standard Guide for Loading Dry-Type Distribution and Power Transformers 2013.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- E. NECA 409 - Standard for Installing and Maintaining Dry-Type Transformers 2015.
- F. NEMA ST 20 - Dry-Type Transformers for General Applications 2014.
- G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- H. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- I. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. UL 506 - Standard for Specialty Transformers Current Edition, Including All Revisions.
- K. UL 1561 - Standard for Dry-Type General Purpose and Power Transformers Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

- 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances required by NFPA 70.
- 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
- 3. Coordinate the work with placement of supports, anchors, etc. required for mounting.
- 4. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
- 5. Notify Architect/Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

- B. Coordination: Coordinate the work with placement of support framing and anchors required for mounting of transformers.

1.4 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Product Data: Include voltage, kVA, impedance, tap configurations, insulation system class and rated temperature rise, efficiency, sound level, enclosure ratings, outline and support point dimensions, weight, required clearances, service condition requirements, and installed features.
 - 1. Vibration Isolators: Include attachment method and rated load and deflection.

- C. Shop Drawings: Provide dimensioned plan and elevation views of transformers and adjacent equipment with all required clearances indicated.
 - D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
 - E. Maintenance Data: Include recommended maintenance procedures and intervals.
 - F. Project Record Documents: Record actual locations of transformers.
- 1.5 QUALITY ASSURANCE
- A. Conform to requirements of NFPA 70.
 - B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with documented experience.
 - C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
 - B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.
- 1.7 FIELD CONDITIONS
- A. Ambient Temperature: Do not exceed 86 degrees F (30 degrees C) average or 104 degrees F (40 degrees C) maximum measured during any 24 hour period during and after installation of transformers.

PART 2 PRODUCTS

2.1 TRANSFORMERS - GENERAL REQUIREMENTS

- A. Description: Factory-assembled, dry type transformers for 60 Hz operation designed and manufactured in accordance with NEMA ST 20 and listed, classified, and labeled as suitable for the purpose intended.
- B. Unless noted otherwise, transformer ratings indicated are for continuous loading according to IEEE C57.96 under the following service conditions:
 - 1. Altitude: Less than 3,300 feet (1,000 m).
 - 2. Ambient Temperature:
 - a. Greater than 10 kVA: Not exceeding 104 degrees F (40 degrees C).
 - 3. Ambient Temperature: Not exceeding 86 degrees F (30 degrees C) average or 104 degrees F (40 degrees C) maximum measured during any 24 hour period.
- C. Core: High grade, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Keep magnetic flux densities substantially below saturation point, even at 10 percent primary overvoltage. Tightly clamp core laminations to prevent plate movement and maintain consistent pressure throughout core length.
- D. Impregnate core and coil assembly with non-hydroscopic thermo-setting varnish to effectively seal out moisture and other contaminants.
- E. Basic Impulse Level: 10 kV.
- F. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
- G. Isolate core and coil from enclosure using vibration-absorbing mounts.

- H. Nameplate: Include transformer connection data, ratings, wiring diagrams, and overload capacity based on rated winding temperature rise.
- 2.2 GENERAL PURPOSE TRANSFORMERS
- A. Description: Self-cooled, two winding transformers listed and labeled as complying with UL 506 or UL 1561; ratings as indicated on the drawings.
 - B. Insulation System and Allowable Average Winding Temperature Rise:
 - 1. 15 kVA and Larger: Class 220 degrees C insulation system with 115 degrees C average winding temperature rise.
 - C. Coil Conductors: Continuous copper windings with terminations brazed or welded.
 - D. Winding Taps:
 - 1. 15 kVA through 300 kVA: Two 2.5 percent full capacity primary taps above and four 2.5 percent full capacity primary taps below rated voltage.
 - E. Energy Efficiency: Comply with 10 CFR 431, Subpart K.
 - F. Sound Levels: Standard sound levels complying with NEMA ST 20
 - G. Mounting Provisions:
 - 1. Larger than 75 kVA: Suitable for floor mounting.
 - H. Transformer Enclosure: Comply with NEMA ST 20.
 - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Indoor clean, dry locations: Type 1.
 - 2. Construction: Steel.
 - a. 15 kVA and Larger: Ventilated.
 - 3. Finish: Manufacturer's standard grey, suitable for outdoor installations.
 - 4. Provide lifting eyes or brackets.
 - I. Accessories:
 - 1. Mounting Brackets: Provide manufacturer's standard brackets.
 - 2. Lug Kits: Sized as required for termination of conductors as indicated on the drawings.
- 2.3 SOURCE QUALITY CONTROL
- A. Factory test transformers according to NEMA ST 20.
- PART 3 EXECUTION
- 3.1 EXAMINATION
- A. Verify that field measurements are as indicated.
 - B. Verify that suitable support frames and anchors are installed where required and that mounting surfaces are ready to receive transformers.
 - C. Perform pre-installation tests and inspections on transformers per manufacturer's instructions and as specified in NECA 409. Correct deficiencies prior to installation.
 - D. Verify that conditions are satisfactory for installation prior to starting work.
- 3.2 INSTALLATION
- A. Perform work in accordance with NECA 1 (general workmanship).
 - B. Install products in accordance with manufacturer's instructions.
 - C. Install transformers in accordance with NECA 409 and IEEE C57.94.
 - D. Use flexible conduit, under the provisions of Section 26-0533.13 "Conduit for Electrical Systems", 2 feet (600 mm) minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.

- E. Arrange equipment to provide minimum clearances as specified on transformer nameplate and in accordance with manufacturer's instructions and NFPA 70.
 - F. Install transformers plumb and level.
 - G. Transformer Support:
 - 1. Provide required support and attachment in accordance with Section 26-0529 "Hangers and Supports for Electrical Systems", where not furnished by transformer manufacturer.
 - 2. Use integral transformer flanges, accessory brackets furnished by manufacturer, or field-fabricated supports to support wall-mounted transformers.
 - 3. Use trapeze hangers assembled from threaded rods and metal channel (strut) to support suspended transformers. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - H. Set transformers plumb and level.
 - I. Mount floor-mounted transformers on properly sized 3 inch (80 mm) high concrete pad constructed in accordance with manufacturer's recommendations.
 - J. Mount floor-mounted transformers using vibration isolators suitable for isolating the transformer noise from the building structure.
 - K. Provide grounding and bonding in accordance with Section 26-0526 "Grounding and Bonding for Electrical Systems."
 - L. Remove shipping braces and adjust bolts that attach the core and coil mounting bracket to the enclosure according to manufacturer's recommendations in order to reduce audible noise transmission.
 - M. Where not factory-installed, install lugs sized as required for termination of conductors as indicated.
 - N. Identify transformers in accordance with Section 26-0553 "Identification for Electrical Systems."
- 3.3 FIELD QUALITY CONTROL
- A. See Section 01-4000 - Quality Requirements, for additional requirements.
 - B. Perform field inspection, testing, and adjusting in accordance with Section 01-4000 "Quality Requirements."
 - C. Inspect and test in accordance with NETA ATS, except Section 4.
 - D. Perform inspections and tests listed in NETA ATS Sections 7.2.1.1 and 7.2.1.2. Tests and inspections listed as optional are not required.
- 3.4 ADJUSTING
- A. Measure primary and secondary voltages and make appropriate tap adjustments.
 - B. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.
- 3.5 CLEANING
- A. Clean dirt and debris from transformer components according to manufacturer's instructions.
 - B. Repair scratched or marred exterior surfaces to match original factory finish.
- END OF SECTION

SECTION 26-2416
PANELBOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Power distribution panelboards.
- B. Panelboards.
- C. Overcurrent protective devices for panelboards.

1.2 REFERENCE STANDARDS

- A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service 2013e (Amended 2017).
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NECA 407 - Standard for Installing and Maintaining Panelboards 2015.
- D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- E. NEMA PB 1 - Panelboards 2011.
- F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less 2013.
- G. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- K. UL 67 - Panelboards Current Edition, Including All Revisions.
- L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.
- M. UL 943 - Ground-Fault Circuit-Interrupters Current Edition, Including All Revisions.
- N. UL 1699 - Arc-Fault Circuit-Interrupters Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted panelboards where indicated.
 - 4. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
 - 5. Notify Architect/Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.4 SUBMITTALS

- A. Refer to Division 01 requirements.

- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.
 - C. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, overcurrent protective device arrangement and sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.
 - 1. Clearly indicate proposed short circuit current ratings are fully rated.
 - 2. Include documentation of listed series ratings.
 - D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
 - E. Project Record Documents: Record actual installed locations of panelboards and actual installed circuiting arrangements.
 - F. Maintenance Data: Include information on replacement parts and recommended maintenance procedures and intervals.
 - G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Panelboard Keys: Two of each different key.
- 1.5 QUALITY ASSURANCE
- A. Conform to requirements of NFPA 70.
 - B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with documented experience.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.
 - B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.
 - C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.
- 1.7 FIELD CONDITIONS
- A. Maintain ambient temperature within the following limits during and after installation of panelboards:
 - 1. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).

PART 2 PRODUCTS

2.1 PANELBOARDS - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
 - 1. Altitude: Less than 6,600 feet (2,000 m).
 - 2. Ambient Temperature:
 - a. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).
- C. Short Circuit Current Rating:
 - 1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as determined by short circuit study performed in accordance

with Section 26-0573.

2. Listed series ratings are {CH#113212}.
 - D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
 - E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.
 - F. Bussing: Sized in accordance with UL 67 temperature rise requirements.
 1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.
 2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.
 - G. Conductor Terminations: Suitable for use with the conductors to be installed.
 - H. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Indoor Clean, Dry Locations: Type 1.
 2. Boxes: Galvanized steel unless otherwise indicated.
 - a. Provide wiring gutters sized to accommodate the conductors to be installed.
 - b. Provide painted steel boxes for surface-mounted panelboards, finish to match fronts.
 3. Fronts:
 - a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
 - b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
 - c. Finish for Painted Steel Fronts: Manufacturer's standard grey unless otherwise indicated.
 4. Lockable Doors: All locks keyed alike unless otherwise indicated.
 - I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.
- 2.2 POWER DISTRIBUTION PANELBOARDS
- A. Description: Panelboards complying with NEMA PB 1, power and feeder distribution type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
 - B. Conductor Terminations:
 1. Main and Neutral Lug Material: Copper, suitable for terminating copper conductors only.
 2. Main and Neutral Lug Type: Mechanical.
 - C. Bussing:
 1. Phase and Neutral Bus Material: Copper.
 2. Ground Bus Material: Copper.
 - D. Circuit Breakers:
 1. Provide bolt-on type.
 2. Provide thermal magnetic circuit breakers unless otherwise indicated.
 - E. Enclosures:
 1. Provide surface-mounted enclosures unless otherwise indicated.
 2. Fronts: Provide door-in-door trim with hinged cover for access to load terminals and wiring gutters, and separate lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
 3. Provide clear plastic circuit directory holder mounted on inside of door.

2.3 PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Copper, suitable for terminating copper conductors only.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
 - 2. Phase and Neutral Bus Material: Copper.
 - 3. Ground Bus Material: Copper.
- D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.
- E. Enclosures:
 - 1. Provide surface-mounted enclosures as indicated.
 - 2. Fronts: Provide door-in-door trim with hinged cover for access to load terminals and wiring gutters, and separate lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
 - 3. Provide clear plastic circuit directory holder mounted on inside of door.

2.4 OVERCURRENT PROTECTIVE DEVICES

- A. Molded Case Circuit Breakers:
 - 1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
 - 2. Interrupting Capacity:
 - a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
 - 1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
 - 2) 14,000 rms symmetrical amperes at 480 VAC.
 - b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
 - 3. Conductor Terminations:
 - a. Provide mechanical lugs unless otherwise indicated.
 - b. Lug Material: Copper, suitable for terminating copper conductors only.
 - 4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
 - a. Provide field-adjustable magnetic instantaneous trip setting for circuit breaker frame sizes 225 amperes and larger.
 - 5. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.
 - 6. Provide the following circuit breaker types where indicated:
 - a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.
 - b. Ground Fault Equipment Protection Circuit Breakers: Designed to trip at 30 mA for protection of equipment.

- c. 100 Percent Rated Circuit Breakers: Listed for application within the panelboard where installed at 100 percent of the continuous current rating.
- 7. Do not use tandem circuit breakers.
- 8. Do not use handle ties in lieu of multi-pole circuit breakers.
- 9. Provide multi-pole circuit breakers for multi-wire branch circuits as required by NFPA 70.
- 10. Provide the following features and accessories where indicated or where required to complete installation:
 - a. Shunt Trip: Provide coil voltage as required for connection to indicated trip actuator.
 - b. Handle Pad-Lock Provision: For locking circuit breaker handle in OFF position.

2.5 SOURCE QUALITY CONTROL

- A. Factory test panelboards according to NEMA PB 1.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive panelboards.
- D. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.
- D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- E. Provide required support and attachment in accordance with Section 26-0529 "Hangers and Supports for Electrical Systems."
- F. Install panelboards plumb.
- G. Install flush-mounted panelboards so that trims fit completely flush to wall with no gaps and rough opening completely covered.
- H. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches (2000 mm) above the floor or working platform.
- I. Provide grounding and bonding in accordance with Section 26-0526 "Grounding and Bonding for Electrical Systems."
- J. Install all field-installed branch devices, components, and accessories.
- K. Multi-Wire Branch Circuits: Group grounded and ungrounded conductors together in the panelboard as required by NFPA 70.
- L. Provide filler plates to cover unused spaces in panelboards.
- M. Provide circuit breaker lock-on devices to prevent unauthorized personnel from de-energizing essential loads where indicated.
 - 1. Fire detection and alarm circuits.
 - 2. Communications equipment circuits.
 - 3. Intrusion detection and access control system circuits.
 - 4. Video surveillance system circuits.
- N. Identify panelboards in accordance with Section 26-0553 "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

- A. Perform inspection, testing, and adjusting in accordance with Division 01 requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for all main circuit breakers and circuit breakers larger than 100 amperes. Tests listed as optional are not required.
- D. Test GFCI circuit breakers to verify proper operation.
- E. Test shunt trips to verify proper operation.
- F. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.4 ADJUSTING

- A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.
- B. Adjust alignment of panelboard fronts.
- C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 20 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

3.5 CLEANING

- A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.
- B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26-3213
ENGINE GENERATORS

PART 1 - EXECUTION

1.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that the ratings and configurations of generator sets and auxiliary equipment are consistent with the indicated requirements.
- C. Verify that rough-ins for field connections are in the proper locations.
- D. Verify that mounting surfaces are ready to receive equipment.
- E. Verify that conditions are satisfactory for installation prior to starting work.

1.2 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Install generator sets and associated accessories in accordance with NECA/EGSA 404.
- D. Arrange equipment to provide minimum clearances and required maintenance access.
- E. Unless otherwise indicated, mount generator to roof decking/structure. Provide suitable vibration isolators, where not factory installed.
- F. Provide required support and attachment in accordance with Section 26-0529.
- G. Use manufacturer's recommended oil and coolant, suitable for the worst case ambient temperatures.
- H. Provide grounding and bonding in accordance with Section 26-0526.
- I. Identify system wiring and components in accordance with Section 26-0553.

1.3 FIELD QUALITY CONTROL

- A. See Section 01-4000 - Quality Requirements, for additional requirements.
- B. Provide services of a manufacturer's authorized representative to prepare and start systems and perform inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.
- C. Notify Owner and Architect/Engineer at least two weeks prior to scheduled inspections and tests.
- D. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.
- E. Provide all equipment, tools, and supplies required to accomplish inspection and testing, including load bank and fuel.
- F. Preliminary inspection and testing to include, at a minimum:
 - 1. Inspect each system component for damage and defects.
 - 2. Verify tightness of mechanical and electrical connections are according to manufacturer's recommended torque settings.
 - 3. Check for proper oil and coolant levels.
- G. Prepare and start system in accordance with manufacturer's instructions.
- H. Inspection and testing to include, at a minimum:
 - 1. Verify compliance with starting and load acceptance requirements.
 - 2. Verify voltage and frequency; make required adjustments as necessary.
 - 3. Verify phase sequence.
 - 4. Verify control system operation, including safety shutdowns.
 - 5. Verify operation of auxiliary equipment and accessories (e.g. battery charger, heaters, etc.).

- 6. Perform load tests in accordance with NFPA 110 (1.5 hour building load test followed by 2 hour full load test).
 - I. Provide field emissions testing where necessary for certification.
 - J. Sound Level Tests: Measure sound levels for compliance with specified requirements. Identify and report ambient noise conditions.
 - K. Submit detailed reports indicating inspection and testing results and corrective actions taken.
- 1.4 CLEANING
- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.
- 1.5 CLOSEOUT ACTIVITIES
- A. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.
 - B. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of four hours of training.
 - 3. Instructor: Manufacturer's authorized representative.
 - 4. Location: At project site.
 - C. After successful acceptance test and just prior to Substantial Completion, replace air, oil, and fuel filters.
- 1.6 PROTECTION
- A. Protect installed engine generator system from subsequent construction operations.
- END OF SECTION

SECTION 26-3600
TRANSFER SWITCHES

PART 1 - EXECUTION

1.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that the ratings and configurations of transfer switches are consistent with the indicated requirements.
- C. Verify that rough-ins for field connections are in the proper locations.
- D. Verify that mounting surfaces are ready to receive transfer switches.
- E. Verify that conditions are satisfactory for installation prior to starting work.

1.2 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Arrange equipment to provide minimum clearances and required maintenance access.
- D. Provide required support and attachment in accordance with Section 26-0529.
- E. Install transfer switches plumb and level.
- F. Unless otherwise indicated, mount floor-mounted transfer switches on properly sized 3 inch (80 mm) high concrete pad constructed in accordance with Section 03-3000.
- G. Provide grounding and bonding in accordance with Section 26-0526.
- H. Identify transfer switches and associated system wiring in accordance with Section 26-0553.
- I. Provide engraved plastic nameplates under the provisions of Section 26 0553.

1.3 FIELD QUALITY CONTROL

- A. See Section 01-4000 - Quality Requirements, for additional requirements.
- B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.
- C. Prepare and start system in accordance with manufacturer's instructions.
- D. Provide additional inspection and testing as required for completion of associated engine generator testing as specified in Section 26-3213.
- E. Submit detailed reports indicating inspection and testing results and corrective actions taken.

1.4 CLEANING

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

1.5 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of transfer switches to Owner, and correct deficiencies or make adjustments as directed.
- B. Training: Train Owner's personnel on operation, adjustment, and maintenance of transfer switches.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of four hours of training.
 - 3. Instructor: Manufacturer's authorized representative.
 - 4. Location: At project site.
- C. Coordinate with related generator demonstration and training as specified in Section 26-3213.

1.6 PROTECTION

- A. Protect installed transfer switches from subsequent construction operations.
- END OF SECTION

SECTION 26-4300
SURGE PROTECTIVE DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surge protective devices for service entrance locations.
- B. Surge protective devices for branch panelboard locations.

1.2 ABBREVIATIONS AND ACRONYMS

- A. EMI/RFI: Electromagnetic Interference/Radio Frequency Interference.
- B. SPD: Surge Protective Device.

1.3 REFERENCE STANDARDS

- A. MIL-STD-220 - Method of Insertion Loss Measurement 2009c (Validated 2019).
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.
- D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 1283 - Standard for Electromagnetic Interference Filters Current Edition, Including All Revisions.
- F. UL 1449 - Standard for Surge Protective Devices Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate size and location of overcurrent device compatible with the actual surge protective device and location to be installed. Notify Architect/Engineer of any conflicts or deviations from the contract documents to obtain direction prior to ordering equipment.

1.5 SUBMITTALS

- A. Refer to Division 01 requirements.
- B. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.
- C. Shop Drawings: Include wiring diagrams showing all factory and field connections with wire and circuit breaker/fuse sizes.
- D. Certificates: Manufacturer's documentation of listing for compliance with the following standards:
 - 1. UL 1449.
 - 2. UL 1283 (for Type 2 SPDs).
- E. Field Quality Control Test Reports.
- F. Manufacturer's Installation Instructions: Include application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- G. Operation and Maintenance Data: Include information on status indicators and recommended maintenance procedures and intervals.
- H. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

- I. Project Record Documents: Record actual connections and locations of surge protective devices.
- 1.6 QUALITY ASSURANCE
 - A. Conform to requirements of NFPA 70.
 - B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with documented experience.
 - C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.
- 1.7 DELIVERY, STORAGE, AND PROTECTION
 - A. Store in a clean, dry space in accordance with manufacturer's written instructions.
- 1.8 FIELD CONDITIONS
 - A. Maintain field conditions within manufacturer's required service conditions during and after installation.
- 1.9 WARRANTY
 - A. Manufacturer's Warranty: Provide minimum ten year warranty covering repair or replacement of surge protective devices showing evidence of failure due to defective materials or workmanship.
 - B. Exclude surge protective devices from any clause limiting warranty responsibility for acts of nature, including lightning, stated elsewhere.
- PART 2 PRODUCTS
- 2.1 MANUFACTURERS
 - A. Factory-installed, Internally Mounted Surge Protective Devices:
 - 1. Same as manufacturer of equipment containing surge protective device, to provide a complete listed assembly including SPD.
 - B. Source Limitations: Furnish surge protective devices produced by a single manufacturer and obtained from a single supplier.
- 2.2 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS
 - A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated on the drawings.
 - B. Protected Modes:
 - 1. Wye Systems: L-N, L-G, N-G, L-L.
 - C. UL 1449 Voltage Protection Ratings (VPRs):
 - 1. 208Y/120V System Voltage: Not more than 1,000 V for L-N, L-G, and N-G modes and 1,200 V for L-L mode.
 - 2. 480Y/277V System Voltage: Not more than 1,500 V for L-N, L-G, and N-G modes and 2,000 V for L-L mode.
 - D. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.
 - E. Equipment Containing Factory-installed, Internally Mounted SPDs: Listed and labeled as a complete assembly including SPD.
 - 1. Switchboards: See Section 26-2413.
- 2.3 SURGE PROTECTIVE DEVICES FOR BRANCH PANELBOARD LOCATIONS
 - A. Unless otherwise indicated, provide factory-installed, internally mounted SPDs.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that the service voltage and configuration marked on the SPD are consistent with the service voltage and configuration at the location to be installed.
- C. Verify that electrical equipment is ready to accept connection of the SPD and that installed overcurrent device is consistent with requirements of drawings and manufacturer's instructions.
- D. Verify system grounding and bonding is in accordance with Section 26-0526 "Grounding and Bonding for Electrical Systems", including bonding of neutral and ground for service entrance and separately derived systems where applicable. Do not energize SPD until deficiencies have been corrected.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.2 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Unless indicated otherwise, connect service entrance surge protective device on load side of service disconnect main overcurrent device.
- E. Provide conductors with minimum ampacity as required by NFPA 70 and as required by NFPA 70.
- F. Install conductors between SPD and equipment terminations as short and straight as possible, not exceeding manufacturer's recommended maximum conductor length. Breaker locations may be reasonably rearranged in order to provide leads as short and straight as possible. Twist conductors together to reduce inductance.
- G. Do not energize SPD until bonding of neutral and ground for service entrance and separately derived systems is complete in accordance with Section 26-0526 "Grounding and Bonding for Electrical Systems" where applicable. Replace SPDs damaged by improper or missing neutral-ground bond.
- H. Disconnect SPD prior to performing any high potential testing. Replace SPDs damaged by performing high potential testing with SPD connected.

3.3 FIELD QUALITY CONTROL

- A. See Section 01-4000 - Quality Requirements, for additional requirements.
- B. Perform inspection, testing, and adjusting in accordance with Division 01 requirements.
- C. Inspect and test in accordance with NETA ATS, except Section 4.
- D. Perform inspections and tests listed in NETA ATS Section 7.19.1.
- E. Procure services of a qualified manufacturer's representative to observe installation and assist in inspection, testing, and adjusting. Include manufacturer's reports with field quality control submittals.

3.4 CLEANING

- A. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION